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U.S. DEPARTMENT OF COMMERCE
National Technical Information Service

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# AN ANALYSIS OF USAF DEPOT LEVEL MAINTENANCE CAPABILITY TO MEET SURGE REQUIREMENTS FOR A RIW ITEM: THE C/KC-135, C-141 INERTIAL NAVIGATION SYSTEM

AIR FORCE INSTITUTE OF TECHNOLOGY
WRIGHT-PATTERSON AIR FORCE BASE, OHIO

SEPTEMBER 1976

**UNITED STATES AIR FORCE**

**AIR UNIVERSITY**

# AIR FORCE INSTITUTE OF TECHNOLOGY

**Wright-Patterson Air Force Base, Ohio**





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Gary W. Sharp, Captain, USAF
John C. Toshach, GS-12

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This study presents an analysis of the impact of an RIW contract on the maintenance support of the C/KC-135, C-141 inertial navigation system in the event of a national emergency. The study revealed that adequate support could be maintained through a combination of the INS contractor's maintenance support and the repair capability that could be developed by in-house repair facilities, if the contractor meets the guaranteed MTBF. Failure to meet the guaranteed MTBF would result in disruptions of support. The study recommends an analysis of support capabilities to meet national emergency surges prior to commitment to Reliability Improvement Warranties for sole maintenance support.

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SLSR 15-76B

# AN ANALYSIS OF USAF DEPOT LEVEL MAINTENANCE CAPABILITY TO MEET SURGE REQUIREMENTS FOR A RIW ITEM: THE C/KC-135, C-141 INERTIAL NAVIGATION SYSTEM

A Thesis

Presented to the Faculty of the School of Systems and Logistics

of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the Requirements for the

Degree of Master of Science in Logistics Management

By

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GS-12

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## CHAPTER I

## PROBLEM DEFINITION

### Statement of the Problem

Air Force depot level maintenance is a highly industrialized activity performed by both in-house and contract sources. The cost of depot level plus lower levels of maintenance range from three to ten times the acquisition cost of military systems over a ten year life span (18:4). In fiscal year 1974 the Department of Defense was spending $20 billion a year for maintenance (23:58). Cost pressures of this magnitude have forced the Department of Defense to have a high concern for the cost of maintaining its systems. Recently the DOD has initiated the use of Reliability Improvement Warranties (RIW) in an attempt to lower the life cycle cost of military systems by lowering their maintenance costs.

RIWs are long-term contracts restricting repair capability of warranted items to the contractor for the duration of the warranty period (14:9). RIWs have been advanced as a useful device to obtain improved reliability (in terms of greater mean time between failures (MTBF)) by providing the contractor a positive financial incentive to increase the MTBF through a fixed price warranty contract (14:2). These

warranties are applicable to new procurement as well as items that are already in the inventory (28). Important as the life cycle cost of equipment may be, it is not the only factor that must be considered in a maintenance policy. The DOD must also maintain the industrial base capability to respond to surge requirements for repair of equipment resulting from increased activity in times of emergency conditions (30:3).

The DOD has maintained the capability in its depot level organic maintenance facilities to respond to surge repair requirements and field repair capability for several reasons:

> First, since a full wartime support capability was required, it was felt that only a government depot could be required and counted on to retain this reserve capacity at all times. Second, since government depot employees are not allowed to strike, critical support of weapons systems would be assured at all times. Third, since government depots are under full government control, they cannot refuse to do some work on the grounds that it is not economical, etc. [11:2].

Modern military hardware is highly complex and embodies advanced state-of-the-art technology in most cases. Time and money constraints often preclude the testing and analysis required to achieve high reliability. Consequently, military systems are frequently deployed in an unstable state (predisposed to early failure), and require extensive resources to operate and support (21:1). Air Force organic maintenance at depot level, supplemented by contract maintenance, has historically maintained the resources necessary to provide this support.

For existing inventory items, the question of maintaining a surge repair capability is not usually an onerous one because the RIW contract has historically been performed concurrently with alternate in-house repair (19:10). For new procurement, however, DOD does not develop in-house repair capability until long after the item has been introduced into the inventory. Thus, in these cases, in-house repair capability may be seriously delayed. As a result, the government loses direct control over the maintenance of a surge repair capability (24). In the event that an RIW contractor supporting mission-essential equipment could not respond to surge requirements, alternative repair sources would have to be developed to meet the surge (6). In-house depot level maintenance facilities may then be a prime candidate for consideration in meeting surge requirements. Given the possibility that a contractor could not fully respond to a surge requirement, an examination should be made of the impact of RIWs on depot level maintenance capability to respond to surge requirements (6).

## Background

From an economic viewpoint, reliability improvement warranties offer benefits unobtainable from any other kind of procurement methodology (36:B7-B8). The objective of RIW contracts is to provide the contractor an incentive to design and produce more reliable equipment with high mean time between failures (MTBF) resulting in lower maintenance costs during field/operational use of the equipment (37:A-14). The

contractor is responsible for repair of all warranted items during the contractually specified warranty period, which is usually quite long (normally 2-6 years). During this time, the contractor is encouraged to implement no-cost (to the government) Engineering Change Proposals (ECPs) that will increase equipment reliability. Since the contractor has the responsibility for all equipment repair for a fixed price, the reliability improvement should increase his profits (14:5-10).

Close scrutiny of the defense dollar has placed greater emphasis on the Life Cycle Cost (LCC) concept for weapons systems acquisition and has stimulated increased interest in the fixed cost features of RIW contracts which would enhance this concept (21:5). One of the benefits attributed to RIWs is the minimal investment required by the government for initial support, since the contractor acquires test and repair equipment to provide all repair services during the warranty period for a fixed price agreed upon during contract negotiations. RIW usage may also reduce requirements for skilled military maintenance and support manpower (37:A-13,A-14). These anticipated benefits have created high level (Assistant Secretarial) interest in the applicability of RIW within the DOD procurement methodology (22:1). This interest has resulted in a profusion of activity within the Department to enter into RIW contracts (28). The criteria provided by DOD for selecting RIW candidates (22:6ff) does not include a need for self-sufficiency. This

need for self-sufficiency was identified by the Air Force Business Research Management Center (8:5) and the ARINC Research Corporation in criteria for selection of items for RIW developed for the Rome Air Development Center (2:37,61).

The first documented use of the reliability improvement warranty (then called Failure Free Warranty) by a military department was in 1968, between the Navy and Lear Siegler for the AJB-3 gyro (2:31). Since then, the Navy has completed six such reliability improvement warranties (35:17). Interest in the DOD has grown and culminated in an action memorandum from the Assistant Secretary of Defense (Installation and Logistics) calling for trial RIWs for the purpose of improving RIW guidelines and to provide a broad base of experience from which to assess the effect of RIW on item reliability (22:1).

The initial DOD guidelines for selecting items for RIW recognize that not all items are suitable for this kind of warranty. The items should be of such physical characteristics that it is possible to:

a. Use air freight to ship the items between the using activity and the contract repair site. This is to preclude the requirement for an excessive spare parts pool to support the supply/repair pipeline.

b. Determine that the failure of the item is not due to external causes. The item should be substantially self-contained, immune to sympathetic failure, and sealed to avoid unauthorized tampering.

c. Determine both the expected use and failure rates of the item as well as the actual use and failure rate (22:5-6).

In addition to the physical characteristics, economic factors to be considered in the selection of items for RIW are:

a. It should be possible to obtain the warranty at a price commensurate with the expected value of the work to be accomplished.

b. The equipment should be suitable for being contracted for on a fixed price basis.

c. There should be potential for both the government and the contractor to profit by the contract: there should be enough items; the contract should be of a long enough duration; and there should be a projected usage rate on the equipment that will provide a positive impetus to the contractor to make improvements on the items (22:5-6).

The Navy has found the RIW to be an effective tool for reducing life cycle costs (35:19). In one instance (the AJB-3 gyro), the Navy shows a two million dollar savings in overhaul costs versus the cost that would have been incurred for commercial overhaul (35:14). Deferral of purchase of repair equipment and data, as well as deferral of in-house training costs, are also cited among the advantages of an RIW contract (4:123). The economic aspects of RIWs cannot be denied, and the cost figures presented by exponents of the RIW concept can be compelling in promoting RIW usage.

However, Air Force Regulation 66-7, which implements DOD Directive 4151.1 (20 June 1970) and DOD Instruction 4151.11 (11 June 1973), establishes the requirement to maintain a viable, responsive in-house industrial base for repair of mission-essential equipment. This regulation requires that an organic production base capable of rapid expansion to support emergency operations be maintained. Specifically, the latest maintenance processes are to be used to "maintain a modern industrial base [30:4]" to cover the surge contingency, and this maintenance capability is to be maintained under direct control of DOD where the established chain of command provides flexibility for immediate response to changing environments that could not be approached in a contractual situation (11:2).

AFR 66-7 recognizes contract maintenance as an ". . . effective means of augmenting the organic capacity of the Department of the Air Force to accomplish maintenance of its material [30:4]," but explicitly states that contract maintenance "must not be permitted to degrade the timely attainment of required organic maintenance capability [30:4]." RIWs, however, have been specifically defined as warranties, not maintenance contracts (22:1). Nevertheless, RIWS function as maintenance contracts while they are in force, and the possibility exists that they could degrade the "timely attainment of maintenance."

Under the RIW concept there is a possibility that the contractor may not be able to respond to surge requirements.

The following clause from the F-16 acquisition contract illustrates the possibility of this point:

> . . . the contractor shall not be liable for any time delays (associated with the performance of RIW provisions) if the failure to perform the contract arises out of causes beyond the control and without the fault or negligence of the contractor . . . [1:104].

This clause implies that the DOD cannot necessarily rely on the contractor's capability in the event of a wartime surge. Additionally, the Director of Procurement and Production at Warner Robins Air Material Area expressed the following concern:

> To specify "operational use environment" for such a time period (3 to 5 years) also presents forecasting difficulty and could well be the preamble to a contractor's defense for failure to honor such a warranty should such conditions vary [5].

This was not a problem in the early Navy application, as RIWs were performed concurrently with organic repair. In the first contract, only one third of the gyro population involved was covered by the warranty (19:10).

In a briefing to Mr. Gansler (Office of Assistant Secretary of Defense, Installations and Logistics), Air Force representatives stated that, in the event of a war, the Air Force would rely on increasing spares buys and organic maintenance, as spares, Aerospace Ground Equipment (AGE), and data are optioned in the contract "to allow organic maintenance to come in anytime [7:2]." The preceding position implies that there is a reliance on organic

capability to respond to surge requirements. However, the effect of RIW contracting on the depot level organic maintenance capability is not presently known (17; 21). Within Air Force Logistics Command, DCS/Maintenance personnel have expressed considerable concern about the possible effect that RIWs will have on planning for wartime surge capability to support operational commands' mission readiness (10:1; 24:2). Having spares, AGE, and data optioned in the contract is a definite advantage because obtaining support equipment is the pacing factor in establishing organic repair capability. But, beyond that, training, moving the equipment, setting up the equipment, testing the equipment, and prototyping the repair process have to be completed prior to effective production (17).

## Justification

Several studies have been accomplished on the RIW concept, concentrating on selection criteria, cost factors, and reliability improvement incentives (2; 8; 14; 25), but none of them substantively addresses the impact of RIW on the depot level maintenance surge capability. In one study, the surge requirement is acknowledged with an assumption that the contractor can handle any surge (14:45). Most of the studies referenced, however, have focused upon the cost and reliability incentives of RIW with little consideration of other matters.

Early RIW contracts covered items which were already in the inventory with existing organic maintenance capability

(15:39). The additional government stock items and this maintenance capability provided a redundancy for the warranted items and ensured the government a surge capability (19:10). The latest RIW contracts, however, cover 100 percent of the maintenance capability for each of the items. Under contract terms, the contractors maintain the test and repair equipment, which leaves them as the sole repair sources for the duration of the warranty period (2:24). This aspect of RIW becomes increasingly important, since the number of items procured under RIW agreements is increasing; the Air Force presently has eight components that will use the RIW concept (28).

RIWs only authorize organic maintenance facilities to remove/install and bench check malfunctions for warranted items; therefore, the government's support capabilities are minimal during the long-term warranty period (37:A-14). All RIWs to date have included provisions for transition of maintenance equipment (special tooling, technical data training, field support, and data accumulation and reporting) from contractor support to the buyer's support system upon warranty expiration. The transition of a proven design with all equipment in the same configuration with a provision for spare parts requirements documentation has reflected favorably upon the RIW concept (2:32), but the concept is still relatively new and not fully tested.

With the current trend of extending warranties at premature stages to more complex military equipment and

components, the Council of Defense and Space Industry Association (CODSIA) believes that "the burden of risk being passed to the contractor will become intolerable, and, in the long term, destructive of the best interests of national defense [13:A-22]." The government's total dependence on the contractor for repairs during the warranty period amplifies CODSIA's concern. The AN/ARN 118 TACAN Request for Proposal (RFP) also acknowledges the criticality of using a sole source repair facility by including the provision:

> . . . the contractor shall make provision for at least one backup repair facility and secure storage area located at least five hundred (500) miles from the primary facility [34:50].

Consideration of surge support requirements is also reflected in AFR 800-21, which requires that "trade-off studies for evaluating effects on system operational readiness . . . are made . . . to justify the initial decision" to use interim contractor support. These trade-off studies include an "analysis of . . . war time implications; . . . contractor, organic, and interservice existing capabilities and expected reasonable growth of those capabilities . . . [33:3]." However, Mr. Reyvogel, USAF/LGYE, Office of Primary Responsibility for AFR 800-21, stated that RIW is not considered interim contractor support and AFR 800-21 does not apply to RIW (26). Although no support problems have been documented on RIW contract performance to date, a distinct possibility exists that contractors could be unable to perform under surge conditions. The capability to respond to

increased demands from operational activities in crises is singularly important in logistics. This capability to respond to surge requirements should not be overshadowed by economic considerations alone; therefore, this study will concentrate on the non-economic aspects of RIWs. Information gathered in determining the impact of RIWs on depot level maintenance capability to meet surge requirements will present an additional factor for consideration in the RIW procurement options. Without objectively examining the effects of RIW on surge capability, no counterpoint exists to compelling arguments to employ RIW contracts.

## Research Objective

The theoretical aspects of Reliability Improvement Warranties are difficult to fault from an economic point of view. Unfortunately, the world is not single-dimensioned, and other aspects of DOD spares support also require consideration. In particular, the maintenance of a viable, responsive industrial base capable of responding to surge requirements in the event of a national emergency is important (30:3). The need to provide a rapid response to surge requirements is a primary reason for maintaining government owned and operated depot level repair facilities. The possibility exists that RIW contractors could not meet surge requirements. If such is the case, the impact that numerous RIW contracts would have on the capability for response to surge could be critically important. The objective of this research is to evaluate the effect that solely supporting the

KC/C-135/C-141 Inertial Navigation System (INS) with RIW up to D-Day could have on Air Force depot level maintenance capability to support surge repair requirements for the INS.

## Definition of Terms

D-DAY--First day of national emergency.

ITEM ACTUAL REPAIR HOURS--Number of hours required to repair a specific item at a specific time.

LEARNING CURVE--A projected decrease in time required to repair an item as the number of items repaired increase. The mathematical expression of the learning curve is $Y = KX^n$ where Y is the time required to repair the $X^{th}$ item; K is the time required to repair the first item; X is the unit number; n is log B $\div$ log 2 where B is the nominal value of the learning curve.

ORGANIC DEPOT LEVEL MAINTENANCE--Maintenance by government owned and operated depot level repair facilities--specifically, Air Force depot level repair at Ogden, Oklahoma City, Sacramento, San Antonio, and Warner-Robins Air Logistic Centers (ALCs), and the Aerospace Guidance and Metrology Center (AGMC).

REPAIR CAPABILITY--Capability (expressed in number of items) of contractor/depot level organic maintenance to repair items per unit of time.

SPECIAL EQUIPMENT--Equipment that is peculiar to the repair and/or test of an item. This equipment is not

normally possessed by a repair facility unless that facility is programmed to repair the item.

STANFORD B FACTOR--A factor used to modify the learning curve to account for an organization's previous experience in performing similar work.

SURGE REQUIREMENTS--The time-phased unit requirements (by maintenance priority) generating from D-Day as projected by item requirement computation.

TECHNOLOGY REPAIR CENTER--Organic depot level repair facility responsible for repair of items in specific technologies.

TIME-PHASED--Daily phasing of data.

Study Approach

A simulation study approach was used to address research questions concerning required and available maintenance surge capability, since data available for RIW items are limited (28) and actual data could only be obtained in the event of a national emergency. In this study, depot level organic maintenance capability required to complement RIW contractor repair capability for a selected weapon system component was evaluated at each of three assumed levels of contractor performance. The three selected levels of contractor performance and the rationale for each are as follow:

1. The contractor will continue repair activity at 100 percent of contract specified levels. This level of

activity is considered since the item is on contract for this level of repair.

2. The contractor will increase repair performance to 150 percent of specified levels (number of items repaired). This level of performance was derived by expanding the regular 40 hour work week by an additional 20 hours. The assumption is made that increasing overtime beyond this level will result in diminishing returns that will affect the gains made by the additional overtime. Another assumption necessary here is that excess contractor capacity is available and can be purchased by the government. The cost of purchasing the additional contractor capacity will not be addressed.

3. The third level, where the contractor ceases repair, is based upon the possibility of his being physically or economically prevented from performing the contracted repair. This possibility was discussed in the background information for this study.

## Research Questions

The primary research question which was addressed in this study is as follows:

In the event of a national emergency, could repair capability be developed that would be sufficient to meet time-phased surge requirements for an item that had been supported solely by RIW up to D-Day?

The following questions were addressed to answer the primary research question:

At each of three different levels of contractor performance in a national emergency, would repair capability above the assumed level of contractor performance be required?

What time-phased level of depot level organic maintenance capability could be developed starting at D-Day?

Would the generated maintenance capability be sufficient to cover surge requirements in excess of contractor performance at each of the three assumed levels?

# CHAPTER II

# METHODOLOGY

## Overview

A simulation of the maintenance support from the RIW contractor and organic depot level maintenance for the inertial navigation system (INS) applicable to the C-141 and C/KC-135 aircraft was conducted to determine if sufficient repair capability could be developed to meet anticipated time-phased surge requirements. These anticipated surge requirements for the INS were obtained from AFLC/Material Requirements Branch (MMR) based on USAF logistics planning factors and were compared to the contractor's repair capability at each of the three assumed performance levels previously described. If there were requirements that could not be filled by the contractor, another source of repair would have to be employed to fill the resulting deficit. Since organic maintenance facilities are under government control, they can be required and counted on to develop repair capability; therefore, only the development of depot level organic maintenance capability was addressed. The time-phased development of this organic repair capability was projected on the basis of the number of personnel which could be made available to the INS repair facility on D-Day, projected organization/personnel learning curves, equipment

delivery, set up times, equipment testing, and parts and data support availability. The repair capability thus obtained was then compared to the requirements which exceeded contractor capability at each of the assumed levels of contractor performance.

Item Selection

The initial step in the study was to select an item that will be or could be completely supported by RIW up to D-Day. Weapon system components projected for or currently covered by RIW contracts were identified by the Air Force Logistics Command Contract Maintenance and Management Branch (AFLC/PPPMM). They are: klystron tubes under contract with Varian Associates, the C-141 C/KC-135 INS under contract with Delco Electronics, the C-130 hydraulic pump under contract with ABEX, and the 118 TACAN under contract with Collins Radio (16). These components were screened against the following criteria:

1. It meets RIW selection criteria as outlined in the USAF Interim RIW Guidelines (31).

2. It is designated mission-essential by AFR 66-7.

3. Data concerning its maintenance surge requirements and repair requirements (equipment, man-hours, skills, etc.) were available.

The klystron tubes were rejected on the basis of limited repair action applicable to them. The hydraulic pump was rejected because it is applicable to a test restricted to a relatively small number of C-130s, and capability to

support requirements for the pump is readily available from in-being alternate repair capability. The 118 TACAN was rejected on the basis of the existence of alternate support from substitutable items. The INS was selected as the subject of this study on the basis of meeting the criteria previously listed.

Surge Requirement Source Data

The surge requirements necessary for this study were obtained from AFLC/MMR (3). They were based upon official USAF planning factors and time-phased (projected monthly requirements for a wartime scenario) from D-Day for a period covering two years (see Table II-A). The demands are highest for the first three months with requirements of 258 units per month if the proposed MTBF and INS operating hours are attained. The demands drop to 229 per month for the next three months, then 226 demands per month are generated over the remaining period. The assumption necessary here is that the surge requirements established by AFLC/MMR personnel are representative of requirements which would be generated in a wartime situation.

Item/Contract Repair Source Data

The INS selected for the study is being procured under Air Force contract FD2060-75-64210(C) from the Delco Electronics Division of General Motors Corporation, Goleta, California (29:1). Since this is a recent procurement action (29:1), there is no historical data on this INS. Maximum

procurement options would result in 1,289 installed INSs: 275 modified C-141s with a quantity per application (QPA) of two and 739 C/KC-135s with a QPA of one (29:1.2.11,E.1.III). The operating hours per month of the installed INSs are estimated to be 160 when installed on a C-141 and 55 when installed on a C/KC-135 (29:3.1). The operating hours are computed at 1.5 times the estimated actual flying hours (29:5.4).

Delco Electronics guarantees that the INS will achieve an average mean time between failure (MTBF) of 1,128 operating hours (29:1.2.4). The expected number of repair actions per month that must be accommodated under the RIW provision of the contract is computed by adding the product of the number of INSs installed on C-141s times the C-141 INS operating time per month to the product of the number of INSs installed on C/KC-135s times the C/KC-135 INS operating time per month, then dividing the sum by the MTBF as follows: ((550X160)+(739X55))÷1128=114. Therefore, the contractor must be prepared to repair 114 INSs per month under the terms of the contract.

In addition to the units installed on aircraft, additional INS spares are required to fill the transportation and repair pipelines. The stockage objective for these spares was assumed to have been filled; that is, the number of spare units that should be purchased to support the INS program are assumed to have been purchased and delivered prior to D-Day. The total stockage objective of 283 units consists

of a base level order and shipping time requirement of 46 units, base safety level requirement of 123 units, and depot safety level of 114 units. These stock level computations were validated by AFLC/MMR based upon contract data (9) and account for world-wide Air Force spare assets. When these assets are exhausted, unfilled requisitions result in aircraft not fully equipped.

Monthly surge repair requirements were also computed by AFLC/MMR based on contract data heretofore cited and the Industrial Preparedness Program, dated 23 April 1976 (3; 32). These repair requirements were projected for a worst case scenario.

The simulation program converts the month's repair demands to daily demands based on a poisson distribution. The assumption is made that the demands for INS repair will follow a poisson distribution with a mean of the average daily demand (derived by dividing the month's demand by thirty days). No data exists to determine the appropriate distribution of demands for this INS. However, the poisson was chosen to introduce variability, which could reasonably be expected to exist in an actual maintenance surge situation. The effect of this variability on the extremes of the number of unfilled requirements for a particular day and on the number of days that a stock-out position exists, would not be reflected by a purely deterministic model.

To determine the effect that the contractor's failure to achieve the guaranteed MTBF would have on the simulation,

data were constructed that would be applicable in the event that an MTBF of 500, 750, or 1,000 hours was realized. These data are summarized on Table II-A and were used in additional simulations.

Table II-A

Data Applicable to Different MTBF Levels

| | | | | |
|---|---|---|---|---|
| MTBF | 500 | 750 | 1000 | 1128* |
| Stock Level | 545 | 391 | 311 | 283 |
| Contract Repair Level | 257 | 171 | 129 | 114 |
| Demands for Months | | | | |
| 1-3 | 582 | 388 | 291 | 258 |
| 4-6 | 516.6 | 344.4 | 258.3 | 229 |
| 7-24 | 509.9 | 339.9 | 254.9 | 226 |

*Contract guaranteed MTBF. Remaining figures in this column are based upon contract data.

Organic Repair Source Data

Organic depot level repair can begin upon receipt of special equipment and repair data. To determine the number of items that organic depot level maintenance can repair each day, the number of hours of maintenance capability available was divided by the time required to repair the xth item. The hours of capability available were determined by multiplying the number of personnel by an availability factor which accounts for non-duty time such as sick leave and annual leave. The time required to repair the xth item was determined by the learning curve and availability of special

repair and test equipment, and repair data. The interaction of these variables along the time continuum determines the number of items that can be repaired during any particular day. Projections of the number of personnel available, the availability factor, the shape of the learning curve, and the receipt date of special equipment and repair data were obtained from the applicable AFLC source as outlined in the following paragraphs.

The Aerospace Guidance and Metrology Center (AGMC), Newark Air Force Station, Ohio, was identified as the most likely organic repair center for the INS (6). Personnel from the Work-Loading and Field Services Branch (AGMC/MAWW) provided estimates of organic repair data which follow (12). Under the assumptions of continuing contractor performance, AGMC personnel anticipate that organic repair capability can be initiated at the end of 91 days. The 91 days results from plans to conduct training of in-house personnel at the contractor overhaul site and moving and setting up depot aerospace ground equipment (which AGMC assumed will be available from the contractor) following the training period. Under the assumption of no contractor repair, it is assumed that the special repair equipment and data can be made available to the organic repair activity immediately, and organic repair can begin at D-Day.

Standard repair time is the time that a fully qualified and trained technician requires to repair an item when working at an efficient, normal pace. Standard repair time

includes an allowance for personal rest and delay (coffee breaks, restroom, etc.). These times are based on the average expected occurrence of repair operations, since all repair operations are not performed 100 percent of the time. The standard repair time of the INS was estimated to be 125 direct labor hours. Sixty-eight percent of the time, the repair time is estimated to be between 100 and 150 standard direct labor hours (accounting for a smaller or a greater occurrence rate of repair operations than is included in the 125 hour standard), which yields a standard deviation equivalent to 20 percent of the standard repair time. The 20 percent standard deviation was used in an approximated normal distribution to introduce variability into the time required to repair an item. The variation about the mean time to repair an item occurs when that item requires either more or less than the average standard time to return it to a serviceable condition. For example, only a minor adjustment may be required, or only testing may be necessary (the field activity may erroneously identify an item as failed even though it is serviceable), or an extensive troubleshooting and repair procedure may be followed (as in the case of a massive failure). Introducing the variability into the required item repaired time, as in the daily demands generated by the simulations, will not substantially affect the average time to repair an item, but will affect the extreme values--the number of unfilled requirements for a particular day and the number of days that a stock-out position exists.

The assumption was made that repair times would follow a normal distribution.

The Stanford B Factor and the learning curve describe the effect of repetition on the actual time required to perform a task. A task is not performed as efficiently the first time as it is the second time due to the learning that takes place during the previous time that the task was performed. A 90 percent learning curve shows that the time to accomplish a task reduces to 90 percent of the time required at the previous point every time the number of times that the task is performed is doubled. That is, if the initial task performance required 100 actual labor hours, the second will require 90 hours; the fourth will require 81 hours; and the eighth will require 72.9 hours. The difference between the actual and standard repair time is termed "labor efficiency" and is derived from the ratio of standard hours to actual hours: labor efficiency is equal to standard hours divided by actual hours. The slope of the learning curve is steep as the first tasks are performed and flattens out as the number of times that the task has been performed increases.

A transfer of learning from a similar task results in the first time to accomplish the task intercepting the learning curve where the learning curve slope is shallower than would otherwise be applicable. The Stanford B Factor is introduced into the learning curve formulation to account for this variance. The Stanford B Factor of 7.3343 and learning curve value of 87.54 percent used in this study

were based on the following estimates: 60 percent direct labor efficiency for repair of the first item following training, 90 percent direct labor efficiency for repair of the 60th item following training, and 40 percent direct labor efficiency for repair of the first item with no training. Detailed development of the Stanford B Factor and the learning curve value is provided in Appendix A.

The number of direct labor personnel available for organic repair in each of the assumed cases of contractor response to the surge requirements (reference Table II-B) was provided by AFLC/MAX (27).

Table II-B

In-house Personnel Availability

| | | | |
|---|---|---|---|
| Contractor Response Percentage | 100 | 150 | 0 |
| In-house Personnel Available for Surge | 83 | 56 | 166 |

Simulation Program

The simulation program was written in Fortran Y machine language compatible with the Honeywell 635 based CREATE system operated by the Air Force Logistics Command at Wright-Patterson AFB. The program consists of three major blocks of instruction which load the program with the required data, introduce a stochastic element to the daily demand rate that is derived from monthly projections, and compute contract and organic repair quantities and stock level. The program logic was developed on the following

pattern: the day's demand is subtracted from the stock on hand and added to the number of reparable items. The number of items that can be repaired by the contractor is then subtracted from the reparables. The contractor repaired items are added to the stock on hand. If any reparables remain after contractor repairs, the number of items that can be repaired by the organic facility is subtracted from the remaining reparables. The organic repaired items are also added to the stock on hand. The results for the day are printed and a computation for the next day begins.

The day's demand is determined by first dividing the projected monthly demand by thirty to yield the average demand per day for the current month. A system generated random number is then used to select a demand from a matrix loaded with demand levels and their associated cumulative poisson probability distribution. The program loads the matrix with the appropriate demand level and probability distribution according to the average day's demand rate. Due to the factorial in the poisson computation exceeding the system's numerical capability, a normal approximation of the poisson is used for average daily demand rates which exceed 13. This approximation is accomplished with a discrete approximation of the normal (0,1) distribution which is loaded in the program.

Following the computation of the day's demand for each of the thirty days in each of the twenty-four months, a heading is printed for the month (which is subsequently

repeated twenty-three additional times). The first phase of the daily computations is to determine the day of the week. This determination is necessary as the simulation assumes that the contractor will perform no work on Saturday, and neither the contractor nor the organic facility will perform work on Sunday. The demands previously computed are indifferent to the day of the week. Stock on hand at the beginning of the day equals the stock on hand at the end of the previous day (stock on hand at the beginning of day 1 is loaded into the program). The number of reparables for the beginning of the current day is computed by adding the current day's demands to the number of reparables remaining at the end of the previous day.

The contractor's daily repair rate is set at the contract monthly repair level divided by 22 (average working days) for the first version, which assumes continued contract support at the contracted level; by 14.67 in the second version, which assumes contract support at 150 percent of the contracted level; and is set to zero for Saturdays, Sundays, and the third version, which assumes no contract support. The day's number of reparables is compared to the contractor's support level for the day to determine the number of items repaired by the contractor. If the contractor has sufficient capability remaining to start, but not finish, an item, that item is put into work and completed with the first subsequent day's contractor capability. The number of reparables is reduced by the number of items repaired plus any items put

into work on the current day but not repaired. Stock on hand is increased by the number of items for which repair has been completed.

After assessment of the contractor's support effect on the asset levels, the program checks the day of the week. If it is Sunday, the day's computations are complete and the results are printed. If it is not Sunday, a determination is made as to whether or not all equipment that is critical to organic repair has been received by the organic repair facility. If not, the day's computations are complete. If the critical items have been received, receipt of noncritical items is then checked, and the first item repair time is modified by the effect that receipt of these items will have (receipt of specialized tools and/or data is expected to reduce the repair time by a specified percentage). The program then checks to determine if there is any work to be accomplished. If there is no work remaining to be done, the day's computations are complete. If there is work to be accomplished (either completion of an in-work item being held at the organic repair facility or additional reparables or both), the number of hours of organic capability for the day is computed. This capability is first applied to repair of an in-work item. If capability is still available, a reparable is put into work; and the number of reparables is reduced by one. The expected time to repair the item just put into work is computed according to a specified learning curve value and the number of the item entering organic

repair (first, second, etc.). A system supplied random number is then used to compute the deviation from the expected repair time based on an approximation of the normal (0,1) distribution times a prespecified percentage of the expected repair value. That is, if the repair time is expected to be within $\pm$ 10 percent of the mean value 68.26 percent of the time, the randomly selected value of the deviation from the normal (0,1) distribution is multiplied by 10 percent of the mean time to repair the item. The actual repair time thus determined is then compared to the remaining organic repair capability. If the item can be completed, stock on hand is increased by one, and the cycle is repeated for the next reparable. If the item cannot be completed, the item remains in process at the end of the day. When either the organic repair time available or the number of reparables is exhausted, the day's computations are complete, and the results for the day are printed. Thirty days are computed for each month, and 24 months are computed. A description of the program variables and the program coding are included in Appendix B.

## Criteria Test

Legal and economic factors cited in the background information and disruptions in production that could result from establishing priorities for the performance of defense contracts under the Defense Production Act (28:195) made projections of contractor's response in a national emergency outside the scope of this paper. Therefore, the contractor's

response in a national emergency was assumed to be at each of the three previously identified performance levels in the development of the criteria test of the primary research question. The anticipated requirement was compared with each of these levels to determine the additional repair capability, if any, that would be required to totally support the surge.

By matching the time-phased surge requirements to each of the three levels of contractor response and the time-phased development of organic depot level maintenance capability, it was possible to determine if any time frames contained unfilled surge requirements. If the projected depot level organic repair capability could fill requirements excess to contractor performance for the INS (no stock-outs existed), combined contract and organic maintenance capability would be sufficient to maintain support required in the surge situation. Failure to fill a requirement would result in an aircraft not fully equipped.

List of Assumptions

Summary list of assumptions made in the methodology:

1. The contractor will perform at one of three levels of repair:

a. Contractor performs at specified contract level.

b. Contractor performs at 150 percent of specified contract level.

c. Contractor cannot support any contract requirements.

2. Anticipated surge requirements obtained from AFLC are representative of requirements that will be generated in an emergency situation (wartime scenario).

3. Selected item will be supported exclusively by RIW contractor up to D-Day.

4. Alternative repair sources for the RIW item would be subject to the same limitations in developing a repair capability for that item.

5. Projected time-phased organic maintenance repair capability is valid for an emergency situation.

6. Pipeline times for organic and contract maintenance are the same.

7. Failure to support a requirement will result in an aircraft not fully equipped.

8. Increasing the contractor's repair performance over 150 percent of contract specifications would result in diminishing marginal returns.

9. Appropriate repair equipment and data could be immediately transferred to the in-house repair facility in the event of no contractor performance. The assumption necessary here is that the Air Force would recognize prior to D-Day that the contractor would be unable to perform.

10. Initial stock level for the INS would be at the levels indicated by AFLC computations for requirements.

11. The contractor would not work on Saturday or Sunday. The organic repair facility would not work on Sunday.

12. Demands for repair would generate in a poisson distribution.

13. Organic maintenance repair times would follow a normal distribution.

14. Special equipment and data are available from the contractor and can be in place on the 91st day when the contractor continues repair following D-Day and can be in place immediately when the contractor ceases repair.

## Limitations

The results of the comparisons performed in this study are uniquely applicable to the selected RIW item and depend upon the stated assumptions. It is not appropriate to generalize the test results to any other item or class of items. The intent of the study was to determine the possible impact that relying solely upon an RIW for maintenance support would have on capability to meet increased requirements which would generate in the event of a national emergency.

# CHAPTER III

# FINDINGS

## Introduction

The simulation results for this study will be presented, based upon the MTBF and contractor performance level for each of the twelve simulations that were completed. Major emphasis will be placed upon the three primary simulations, which were based upon the contract specified MTBF of 1,128 hours for the INS and contractor repair capability at 100 percent, 150 percent, and 0 percent of the contract specified performance levels. Data from these simulations are graphically displayed in Figures III-A, III-B, and III-C to present a comparison of contractor plus organic repair capability with demands that were generated by the simulation. Although the simulations covered a 24 month period, only portions of this time frame were needed to develop the trends portrayed in these figures. The initial stock on hand for INS spares is plotted with contractor repair capability for the simulations in which contractor repair was a factor, and with organic repair capability when contractor performance was 0 percent. The data plotted are end-of-month figures that graphically display the length of time that total repair capability will be less than the INS demands for repair, as

well as the number of INS units that will not be supported by repairs or initial spares. Summary statistics for the nine simulations based upon reduced MTBFs of 1,000, 750, and 500 hours and the three contractor performance levels of 100 percent, 150 percent, and 0 percent are given in Tables III-D through III-H. Selected computer printouts for each simulation are presented in Appendix C.

Guaranteed MTBF: 1,128 Hours

Contractor performance = 100 percent. Under this assumed level of contractor performance, no organic repair could be generated until D-Day plus 91 days due to training and receipt of equipment. The initial stock on hand of 283 INS units plus the contractor repair satisfy demands that are generated until the third day of the third month, which is one month prior to organic repair being initiated. The INS shortages increase to a maximum of 165 units, which is experienced during the fourth month, then steadily decrease after organic repair begins. Total repair capability is sufficient to satisfy demands once again on the 29th day of the sixth month (see Figure III-A). The trend shown by the graphic portrayal indicates that the stockage objective of 283 spare INS units can again be filled by using both organic and contractor repair, while contractor repair only would result in a steadily increasing number of non-supported INS units. Table III-A gives a summary of the end-of-month data plotted in Figure III-A.

Table III-A

Requirements vs. Repair Capability
MTBF = 1,128 Hours
Contractor Performance = 100 Percent

| Month | Monthly Demand | Cumulative | | | | Unrepaired Units* | Shortage** |
|---|---|---|---|---|---|---|---|
| | | Total Demand | Contractor Repair | Organic Repair | Total Repair | | |
| 1 | 249 | 249 | 121 | 0 | 121 | 128 | 0 |
| 2 | 266 | 515 | 242 | 0 | 242 | 273 | 0 |
| 3 | 278 | 793 | 357 | 0 | 357 | 436 | 153 |
| 4 | 213 | 1006 | 473 | 129 | 602 | 404 | 165 |
| 5 | 230 | 1236 | 594 | 302 | 896 | 340 | 114 |
| 6 | 246 | 1482 | 715 | 496 | 1211 | 271 | 55 |
| 7 | 244 | 1726 | 825 | 699 | 1524 | 202 | 0 |
| 8 | 216 | 1942 | 946 | 927 | 1873 | 69 | 0 |

*Total demand minus total repair.

**Initial stock on hand minus unrepaired units. Figures indicate maximum INS units short per month.

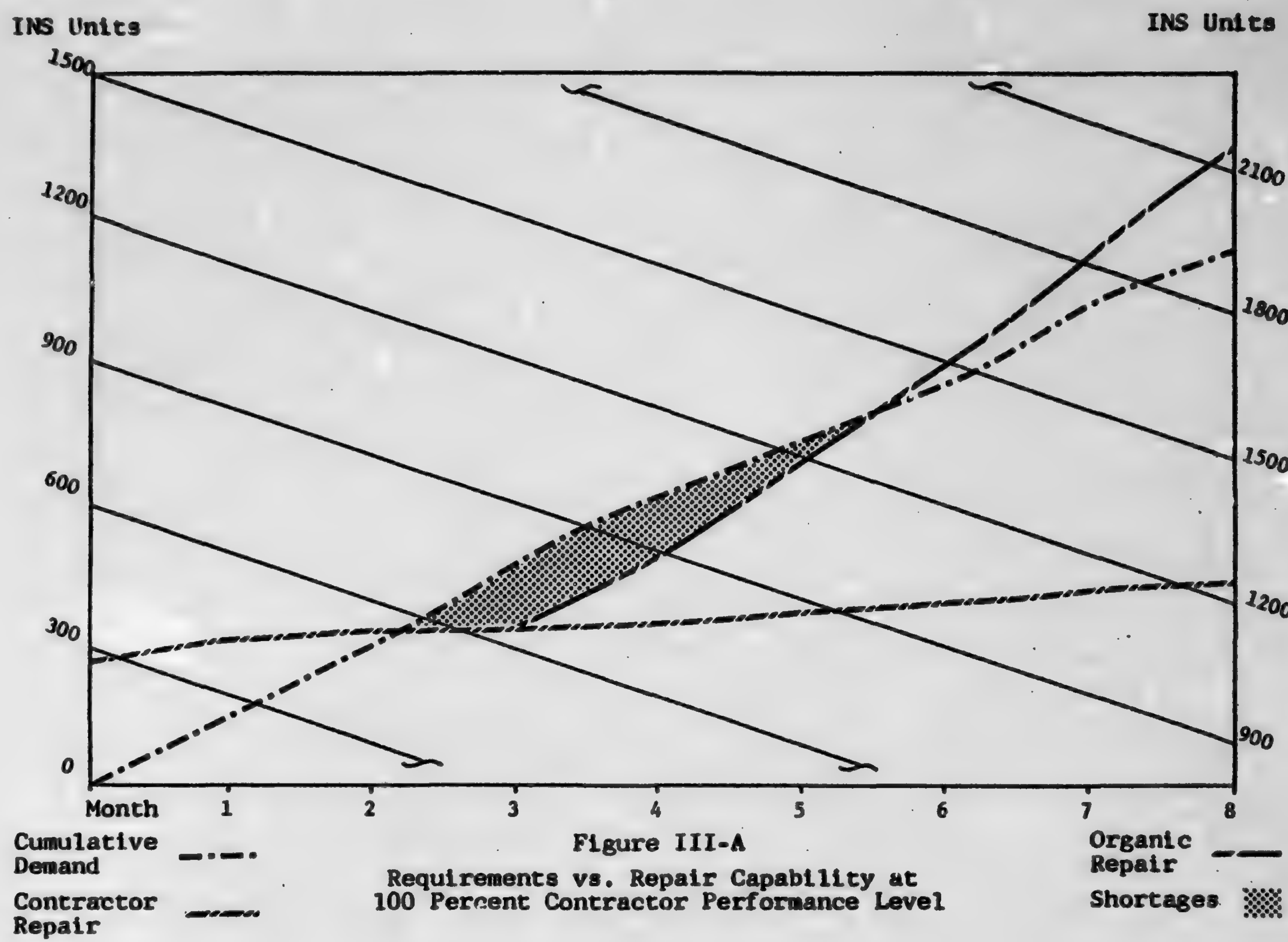


Figure III-A

Requirements vs. Repair Capability at 100 Percent Contractor Performance Level

Contractor performance = 150 percent. With the assumption of 150 percent contractor performance and 283 initial spare INS units, repair support was sufficient to meet demands until the 28th day of the third month. Table III-B indicates a shortage in the third month. Shortages are incurred through the last day of the fourth month. Organic repair was again initiated on the 91st day of the simulation. This organic repair plus the increased contractor performance decreased the time interval of INS unit shortages to approximately one month and the maximum number of shortages at any given time to only thirty units. As with the initial simulation, contractor support only would result in a steadily increasing number of non-supported INS units (see Figure III-B), but the difference would be smaller in this case due to the increased contractor repair.

Contractor performance = 0 percent. Under the assumption of no contractor support the organic facility begins repair at D-Day and maintains sole support of the INS throughout the 24 month simulation. The initial stock on hand of 283 INS units plus the organic repair that can be generated maintain repair support for the INS with no days of shortages (see Figure III-C). Table III-C further shows that only two months end with "Unrepaired Units." This means that the stockage objective of 283 spare units was maintained with few of the spares unrepaired at any given time, or that demands were covered by organic repair sufficiently without depleting the spares.

Table III-B

Requirements vs. Repair Capability
MTBF = 1,128 Hours
Contractor Performance = 150 Percent

| Month | Monthly Demand | Cumulative Total Demand | Cumulative Contractor Repair | Cumulative Organic Repair | Cumulative Total Repair | Unrepaired Units* | Shortage** |
|---|---|---|---|---|---|---|---|
| 1 | 255 | 255 | 165 | 0 | 165 | 90 | 0 |
| 2 | 265 | 520 | 330 | 0 | 330 | 190 | 0 |
| 3 | 267 | 787 | 487 | 0 | 487 | 300 | 17 |
| 4 | 222 | 1009 | 645 | 81 | 726 | 283 | 30 |
| 5 | 214 | 1223 | 810 | 187 | 997 | 226 | 0 |
| 6 | 229 | 1452 | 975 | 306 | 1281 | 171 | 0 |
| 7 | 218 | 1670 | 1125 | 429 | 1554 | 116 | 0 |
| 8 | 219 | 1889 | 1290 | 567 | 1857 | 32 | 0 |

*Total demand minus total repair.

**Initial stock on hand minus unrepaired units. Figures indicate maximum INS units short per month.

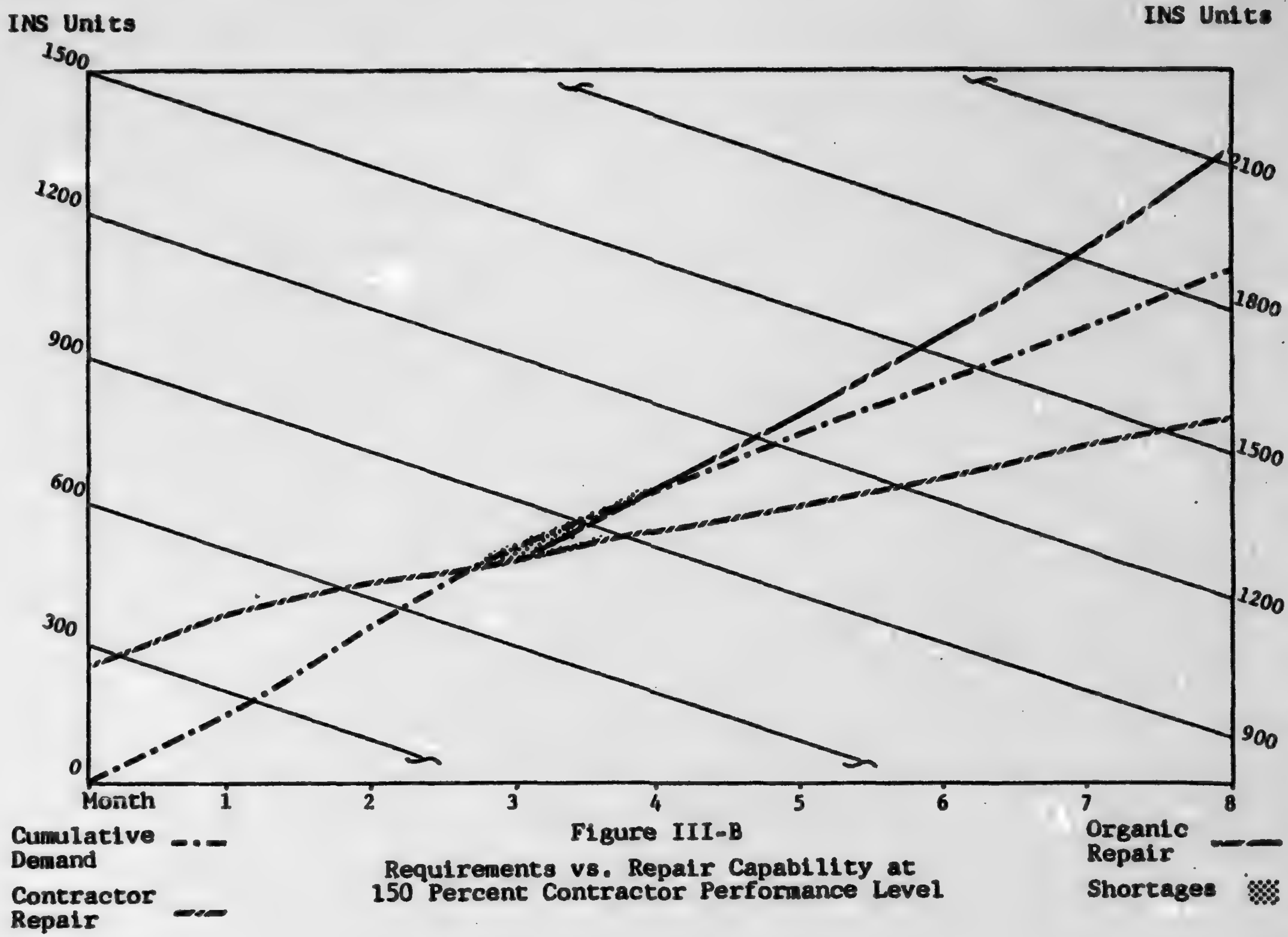


Figure III-B

Requirements vs. Repair Capability at
150 Percent Contractor Performance Level

Table III-C

Requirements vs. Repair Capability
MTBF = 1,128 Hours
Contractor Performance = 0 Percent

| | | Cumulative | | | | | |
|---|---|---|---|---|---|---|---|
| Month | Monthly Demand | Total Demand | Contractor Repair | Organic Repair | Total Repair | Unrepaired Units* | Shortage** |
| 1 | 242 | 242 | 0 | 242 | 242 | 0 | 0 |
| 2 | 283 | 525 | 0 | 525 | 525 | 0 | 0 |
| 3 | 262 | 787 | 0 | 787 | 787 | 0 | 0 |
| 4 | 249 | 1036 | 0 | 1030 | 1030 | 6 | 0 |
| 5 | 254 | 1290 | 0 | 1290 | 1290 | 0 | 0 |
| 6 | 247 | 1537 | 0 | 1537 | 1537 | 0 | 0 |
| 7 | 222 | 1759 | 0 | 1748 | 1748 | 11 | 0 |
| 8 | 230 | 1989 | 0 | 1989 | 1989 | 0 | 0 |

*Total demand minus total repair.

**Initial stock on hand minus unrepaired units. Figures indicate maximum INS units short per month.

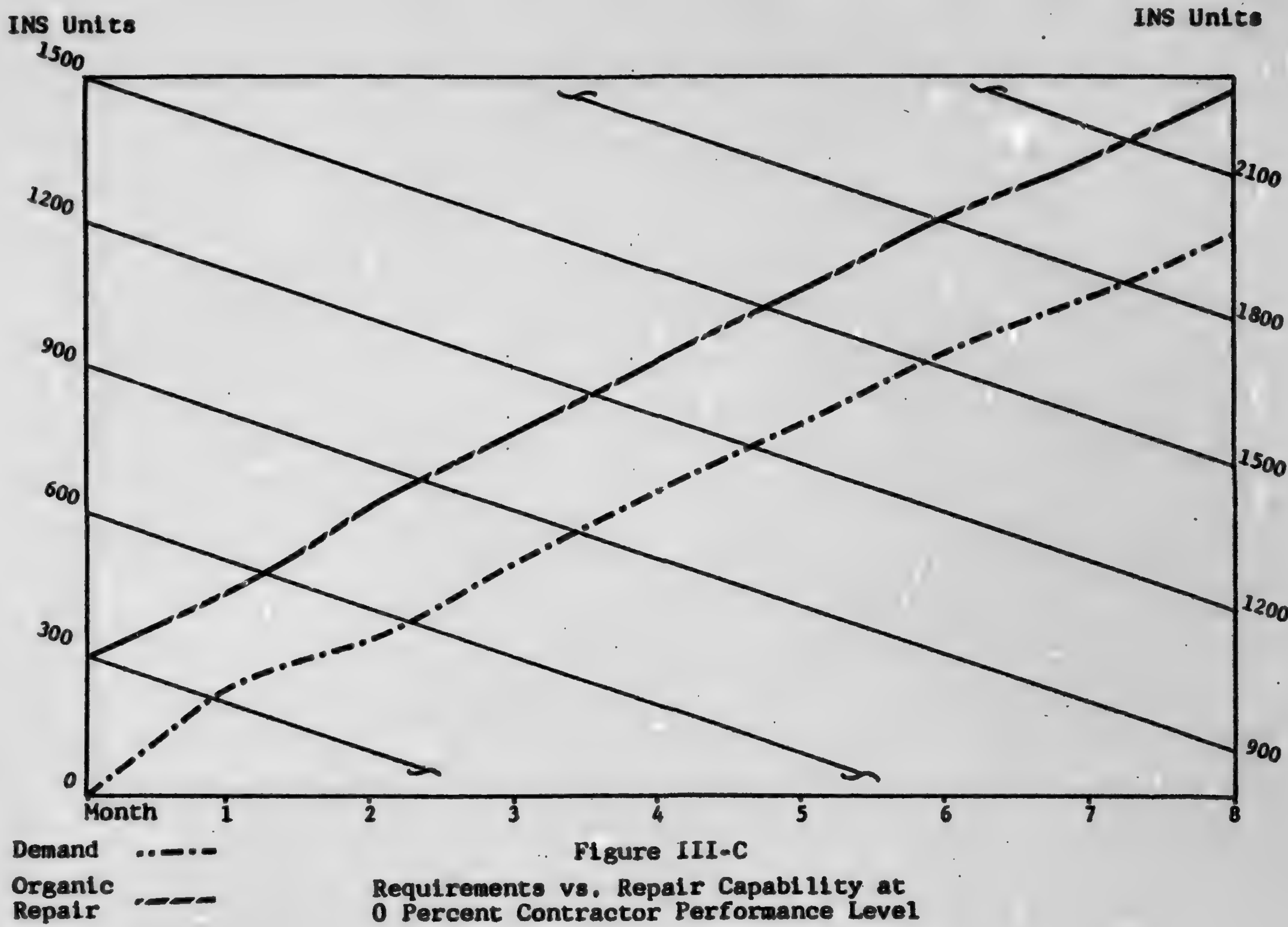


Figure III-C

Requirements vs. Repair Capability at
0 Percent Contractor Performance Level

<u>Reduced MTBF: 1,000 Hours</u>

<u>Contractor performance = 100 percent</u>. Repair support changed slightly from the primary simulation based upon 1,128 hours MTBF. The initial spare support was recomputed for 1,000 hours MTBF as 311 units. The length of time with shortages increased by one month (beginning on day five of month two and ending on day 25 of month seven), and the maximum number of INS shortages increased by six to 174 (see Table III-D).

<u>Contractor performance = 150 percent</u>. The 311 initial spare INS units were again used under this assumption. Shortages were incurred during the third month and continued through the 26th day of the fifth month. The maximum number of INS shortages causing mission degradation at any given time was 25. The variability introduced into the simulations produced this two and a half month period of shortages with 25 as the maximum number of shortages, while at the same contractor performance level and a better MTBF of 1,128, the length of time of shortages was one month less and the maximum number of shortages was 30. The greater MTBF would normally produce the better results.

<u>Contractor performance = 0 percent</u>. The 311 INS spares plus the organic repair that can be developed was sufficient to meet the demands with no shortages (see Table III-D). The demands were met by the organic repair and the

stockage objective was maintained at or near the 311 units required.

Table III-D

Maximum INS Unit Shortage per Month
MTBF = 1,000 Hours

| Month | Contractor Performance Level | | |
|---|---|---|---|
| | 100% | 150% | 0% |
| 1 | 0 | 0 | 0 |
| 2 | 0 | 0 | 0 |
| 3 | 150 | 21 | 0 |
| 4 | 173 | 25 | 0 |
| 5 | 174 | 12 | 0 |
| 6 | 142 | 0 | 0 |
| 7 | 77 | 0 | 0 |
| 8 | 0 | 0 | 0 |

Reduced MTBF: 750 Hours

Contractor performance = 100 percent. The stockage objective was again computed for 750 hours MTBF as 391 units. These spares plus the repair capability that could be generated maintained support of the INSs without mission degradation until day 27 of the second month. There were approximately twelve months in which INS units were not available for required missions (seven months produced shortages over 200 units). The maximum number of units short at any given time was 274 units, which occurred during the fifth month (see Table III-E).

Contractor performance = 150 percent. Under this assumption, the 391 initial spares plus repair capability support mission requirements until the 12th day of the third month, then shortages increase to a maximum of 182 units during the fifth month (see Table III-E). The shortages exist throughout seven months of the simulation with over a hundred units short for six of those months.

Contractor performance = 0 percent. The initial stockage objective of 391 INS units support plus the organic repair capability furnished 100 percent mission support (see Table III-E). Although the repair capability developed by the organic facility does not meet demands as they arise, the maximum reduction of spares is slightly over 100 units, and these units are eventually repaired and replaced.

Table III-E

Maximum INS Unit Shortage per Month
MTBF = 750 Hours

| | Contractor Performance Level | | |
|---|---|---|---|
| Month | 100% | 150% | 0% |
| 1 | 0 | 0 | 0 |
| 2 | 24 | 0 | 0 |
| 3 | 228 | 114 | 0 |
| 4 | 264 | 167 | 0 |
| 5 | 274 | 182 | 0 |
| 6 | 269 | 173 | 0 |
| 7 | 260 | 134 | 0 |
| 8 | 266 | 114 | 0 |
| 9 | 241 | 75 | 0 |
| 10 | 195 | 36 | 0 |
| 11 | 153 | 0 | 0 |
| 12 | 65 | 0 | 0 |
| 13 | 0 | 0 | 0 |

Reduced MTBF: 500 Hours

Contractor performance = 100 percent. When the INS MTBF was lowered to 500 hours, mission degradation in the form of INS unit shortages appeared during the second month (see Table III-F). The computation of the stockage objective at 500 hours MTBF shows that 545 spare INS units would be required. This MTBF is less than half the MTBF guaranteed by the contractor and yielded undesirable results for the simulation. Shortages continued throughout the simulation after the first month with the maximum number of 1147 units short during the 16th month (see Table III-F). The three months' printouts in Appendix C show the trend developed in this simulation, which revealed the worst results of any of the simulations.

Contractor performance = 150 percent. The situation improves somewhat under this assumption. The increased contractor performance plus the 545 spares support the INS without shortages until the third month (see Table III-F). The simulation reveals over eight and a half months with shortages, with a maximum number of 213 shortages during the sixth month.

Contractor performance = 0 percent. Again, the 545 spares and repair support delayed any shortages until the middle of the third month (see Table III-F). In this simulation, shortages were encountered through five months, with a maximum number of 111 units in the third month. The

average number of shortages for this simulation at 500 hours MTBF was lower than the previous two which had contractor support, and the duration of the shortages was less.

Table III-F

Maximum INS Unit Shortage per Month
MTBF = 500 Hours

| | Contractor Performance Level | | |
|---|---|---|---|
| Month | 100% | 150% | 0% |
| 1 | 0 | 0 | 0 |
| 2 | 139 | 0 | 0 |
| 3 | 473 | 62 | 53 |
| 4 | 621 | 121 | 100 |
| 5 | 744 | 190 | 93 |
| 6 | 833 | 213 | 111 |
| 7 | 874 | 202 | 98 |
| 8 | 951 | 178 | 52 |
| 9 | 1056 | 180 | 0 |
| 10 | 1096 | 153 | 0 |
| 11 | 1099 | 146 | 0 |
| 12 | 1092 | 96 | 0 |
| 13 | 1110 | 43 | 0 |
| 14 | 1115 | 23 | 0 |
| 15 | 1128 | 0 | 0 |
| 16 | 1147 | 0 | 0 |
| 17 | 1144 | 0 | 0 |
| 18 | 1105 | 0 | 0 |

Summary Statistics

Tables III-G and III-H provide an overall summary of the data for the twelve simulations. Table III-G shows the number of install-days that are not supported in each of

the twelve simulations that were run. An install-day is a unit expressing the installed INS for one day. There are 928,080 install-days requiring support during the 24 month simulation (1,289 installs times 720 days). Thus, the quantity and duration of unfilled requirements can be expressed. The percentages of non-supported install-days of the total 928,080 required are also provided in Table III-G. Table III-H provides the average effect that non-supported install-days have on aircraft fully equipped rates for the months where there are non-supported install-days. These percentages are derived by dividing the total number of install-days by the product of the number of months in which non-support occurred times thirty days times 1,289 installs.

Table III-G

Non-supported Install-Days

| MTBF \ Contractor Response | 0% | 100% | 150% |
|---|---|---|---|
| 500 | 10,159<br>1.09% | 600,000+<br>65.0% | 36,399<br>3.92% |
| 750 | 0<br>0% | 57,169<br>6.16% | 22,469<br>2.42% |
| 1,000 | 0<br>0% | 15,833<br>1.71% | 434<br>0.05% |
| 1,128* | 0<br>0% | 10,113<br>1.09% | 368<br>0.04% |

*Contract guaranteed MTBF.

+Indicates that the number is larger than that shown.

Table III-H

Percentage Impact on Fully-Equipped Rate

| MTBF \ Contractor Response | 0% | 100% | 150% |
|---|---|---|---|
| 500 | 6*<br>4.38%** | 23<br>67.46% | 12<br>7.84% |
| 750 | 0<br>0% | 11<br>13.44% | 8<br>7.26% |
| 1,000 | 0<br>0% | 5<br>8.19% | 3<br>0.37% |
| 1,128*** | 0<br>0% | 4<br>6.54% | 2<br>0.48% |

*Number of months non-support occurred.

**Percentage impact on fully-equipped rate for months with non-support.

***Contract guaranteed MTBF.

Interpretation of Simulation Results

One surprising result of the simulations was that the stockage position was maintained better when there was no contractor response than under either of the other two levels of contractor response. This condition resulted from two factors: more personnel were assigned in-house to support the INS under the no contractor response assumption; and the immediate commencement of in-house repair activity on D-Day, as opposed to waiting 91 days for training and receipt of equipment. The differences in personnel assignment resulted from the policy that was used to determine the assignments. The number of personnel that were assigned reflect an effort to balance the AGMC maintenance capability according to the priority of the workloads to be supported in the emergency.

That is, shortages in maintenance capability were to be rationed out inversely according to priority so as to not allow a disproportional shortage of maintenance capability to a single priority workload (27). Since equipment and data are optioned into the contract "to allow organic maintenance to come in anytime [7:2]," the assumption was made that organic maintenance activity would commence immediately if the contractor failed to continue support. These two factors more than make up for the interception of the learning curve at a higher point (312.5 actual hours for first time repair versus 208 actual hours for first time repair).

A peculiarity of the workload at AGMC also influenced the outcome of the simulations. A large part of the AGMC workload involves missile guidance systems that do not surge in the emergency scenario. Since the missile workloads do not surge, more personnel resources can be made available at AGMC than could be if the item were assigned to one of the other Technology Repair Centers (27). It should be pointed out, however, that the resources that can be made available at AGMC are finite and could not support a large influx of RIW items requiring additional maintenance support in the event of a surge.

## CHAPTER IV

## CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

### Conclusions

The effect of relying solely upon Delco, the INS contractor, for repair support until D-Day would present no major problem as long as the guaranteed MTBF of 1,128 hours is achieved and organic capability can be generated at the same rate that occurred in the simulations. Although contractor repair was insufficient to meet generated demands in all the simulations, shortages were incurred in only four months of the 100 percent contractor performance level simulation and two months in the 150 percent simulation due to the additional repair generated by organic maintenance facilities. The greatest impact on the fully-equipped rate for months in which shortages were incurred was the 6.54 percent experienced during the four months of the 100 percent contractor performance level simulation. This would roughly equate to a 93 percent operational ready rate if the INS were the only consideration; however, cannibalization of INS units from aircraft requiring major maintenance could be considered as an alternative to alleviate deficiencies in the area of INS shortages for aircraft that would otherwise be mission capable.

If the contractor fails to maintain the guaranteed MTBF of 1,128 hours for the INS, greater disruptions in mission support and extended periods of INS shortages can be expected unless organic repair capability beyond that generated in the simulations could be developed. Although data from an actual wartime surge could differ from data used in the simulations, the simulations should be representative since they were based upon information obtained from individuals and organizations that will be responsible for initiating organic repair for the INS in the event of a surge requirement in a national emergency.

Extreme disruptions occurred in one of the simulations (contractor performance at 100 percent and MTBF of 500 hours) when 83 percent of the support requirements could not be filled (this occurred in the 16th month). This situation appears to be highly unlikely, since the MTBF would be reduced below half the guaranteed MTBF. Undoubtedly, some adjustments in resource commitments would be made to alleviate these shortages, but the new allocations could have an adverse effect on the support of another item. The priorities of mission essential equipment would be a primary consideration for this reallocation of resources.

The results of the simulations with reduced MTBFs illustrate the importance of determining the impact that a commitment to allow a reliability improvement warranty to solely govern maintenance actions for a mission essential item could have on depot level maintenance support capability

in a wartime situation. This impact should be examined for each procurement action in which RIW clauses are proposed. AFR 800-21, which addresses Interim Contractor Support, requires such a study, and should be extended to include RIW contracts.

## Recommendations for Future Research

Contractor response capability. The legal, economic, administrative, and physical considerations which could impinge on a contractor's capability to support surge requirements (heretofore cited) call for more extensive consideration when an item is selected for support on an RIW contract. In the literature review, no research was found that had as its subject an analysis of the expected contractor response to a surge requirement under an RIW contract. In view of the improved support posture that resulted in the simulations with an assumed contractor response of 150 percent over those obtained when the contractor response was 100 percent, an analysis of expected contractor response in the event of a surge should be considered a viable, necessary research topic with respect to RIW contracts.

Expected MTBF. Although a contractor guarantees the achievement of a certain average MTBF, there is no certainty that the contractor can or will achieve it. There could, for example, be a determination that the contractor would achieve a better profit position (smaller loss position) by accepting a contractual penalty when the achievement of the guaranteed

MTBF would cost more than would be lost through the penalty. The sensitivity of the simulations to changes in MTBF indicate that there should be a risk assessment of the expected MTBF. Research into the achievement of actual MTBFs versus guaranteed MTBFs would be beneficial in planning for the support of items in a surge.

RIW item support policy. As was alluded to in Chapter I, there is no uniform policy to determine whether in-house or contract support should be relied upon in the event of a national emergency. In the simulations completed in this study, in-house repair capability could satisfy the surge demands with no stock outage except in the instance where the achieved MTBF was 500. The simulations depend entirely on the estimates and assumptions that were made for their validity, however, and are thus restricted in their interpretation. Research comparing support sources (contractor vs. organic repair) in the event of surge conditions would be a valuable input to the policy formulation process.

# APPENDIX A

## DEVELOPMENT OF LEARNING CURVE AND STANFORD B FACTOR

# APPENDIX A

## DEVELOPMENT OF LEARNING CURVE AND STANFORD B FACTOR

The mathematical expression of the learning curve is $Y=K(X+SB)^n$ where Y is the time to repair the $X^{th}$ item; K is the time required to repair the first item; X is the item number; SB is the Stanford B Factor; and n is log B divided by log 2 where B is the nominal value of the learning curve (90 percent equals .90). Three points on the learning curve which are required to compute the Stanford B Factor and the learning curve value are derived from Organic Repair Source Data given in Chapter II: the first item repair with no training requires 312.5 actual hours (125 standard hours divided by 40 percent labor efficiency); the first item repair with training requires 208 actual hours (125 standard hours divided by 60 percent labor efficiency); and the sixtieth item following training requires 138.88 actual hours (125 standard hours divided by 90 percent labor efficiency). These points allow two simultaneous equations to be developed:

| | |
|---|---|
| $Y=K(X+SB)^n$ | $Y=K(X+SB)^n$ |
| $208=312.5(1+SB)^n$ | $138.88=312.5(60+SB)^n$ |

The first equation establishes the relationship between the repair time of the first item following training and the

repair time of the first item with no training. The second equation establishes the relationship between the time required to repair the sixtieth item following training and the repair time of the first item with no training. The first step in the solution procedure is to solve the first equation in terms of n and to substitute that value of n in the second equation:

$$.6656=(1+SB)^{n} \qquad .444416=(60+SB)^{n}$$

take the log of both equations:

$$-.176786=(\log(1+SB))n \qquad -.35221=(\log(60+SB))n$$

$$n=\frac{-.176786}{\log(1+SB)}$$

substituting for n in the second equation:

$$-.35221=(\log(60+SB)(\frac{-.176786}{\log(1+SB)})$$

$$1.9929(\log(1+SB))-\log(60+SB)=0$$

which is solved iteratively to yield: SB=7.3343.

The Stanford B Factor is then substituted into the first equation to solve the learning curve value:

$$208=312.5(8.3343)^{n}$$

$$.6656=(8.3343)^{n}$$

take the log of the equation:

$$-.176786=.920869(n)$$

$$n=\frac{\log(\text{learning curve})}{\log 2}=-.191977$$

$$\log(\text{learning curve})=(-.191977)(.301029)=-.057791$$

take the antilog:

learning curve=.8754.

APPENDIX B

PROGRAM VARIABLES AND CODING

## APPENDIX B

## PROGRAM VARIABLES AND CODING

**Real Array Variables**

| | |
|---|---|
| DDRC(3,31) | Poisson distribution of demands. Row one contains the value of the daily demand for repair (0 through 31); row two contains the individual probability of the demand value; and row three contains the cumulative probability of the demand value. |
| MD(24) | Month's demands for two years. |
| MNCOMP(3,30,25) | The second and third dimensions represent days and months respectively; thirty days to a month and twenty-four months (plus one to avoid data spillover in matrix manipulation). Row one contains the stock on hand at the beginning of the day; row two contains the day's demand based on a probabilistic poisson distribution of the average day's demand for the month; and row three contains the contractor's repair capability expressed in units with Saturdays and Sundays set to zero (in the third version, no contractor support, this entire field is set to zero). |
| NNCRED(2,5) | Date of receipt and effect on repair time of noncritical equipment and data used in organic repair. |
| NORMAL(2,74) | A discrete approximation of a normal (0,1) distribution. Row one contains the standard deviation value; row two contains the cumulative probability density of the associated standard deviation value in row one. |

**Real Scalar Variables**

| | |
|---|---|
| ADD | Accumulates the cumulative probability density of the poisson distribution. |

| | |
|---|---|
| AVFAC | Percent of time available from organic workers that can be applied to direct effort, expressed in decimal equivalent. |
| A1 | An artificial first item repair time used for learning curve computation when the Stanford factor is not equal to zero. |
| CR | Contract repair level expressed as the number of items repaired per day. |
| CRIW | Partially completed item in contract repair. |
| CRIWA | Completion of an item partially completed the previous day by the contractor. |
| CRL | Contract specified contractor repair capability in number of items per month. |
| FRT | Time to repair the first item by the organic facility as adjusted by the receipt of non-critical data and equipment. |
| K | Used in computing the factorial in the poisson distribution computation. |
| KFAC | Used in computing the factorial in the poisson distribution computation. |
| MD1 | Average day's demand for the month. |
| PARTL | Number of hours required to complete a partially completed item in organic repair. |
| PCTDEV | Percentage of the ith item organic repair time that constitutes one standard deviation for the ith item repair time. |
| RNDM | A system supplied random number. |
| RTA | Organic repair time available. |
| SB | Stanford B factor used to adjust the learning curve to account for transfer of learning. |
| SOH1 | Stock on hand on D-Day. |
| STDEV | One standard deviation of the current repair time. |
| SUN | Indicates Sunday if equal to 1. |

| | |
|---|---|
| TI1 | Time required to repair the first item by the organic facility. |
| X | A system supplied random number. |
| XLC | Log 10 of the learning curve value. |
| Y | The expected organic repair time for the ith item computed according to the learning curve. |
| YTRU | The computed organic repair time for the ith item based on a normal deviation about the expected repair time. |

Integer Scalar Variables

| | |
|---|---|
| CIR | Contract items repaired excluding completions of in work items carried over from a previous day. |
| I | Index for do loops 10 and 40. |
| ICREP | Number of items repaired by contract. |
| ICUMCR | Cumulative number of items repaired by contract. |
| ICUMDMD | Cumulative number of demands. |
| ICUMOR | Cumulative number of items repaired organic. |
| IDDMD | Day's demand. |
| II | Day of the week. |
| IMD1 | Integer value day's demand. |
| IR | Number of items repaired by the organic facility. |
| ISOH | Stock on hand. |
| ITH | The number of the item in organic repair (first, second, etc.). |
| J | Index for do loops 30 and 50. |
| JJ | Index for do loops 25 and 90. |
| J3 | Index for do loop 220. |
| J5 | Index for do loop 175. |

| | |
|---|---|
| J6 | Index for do loop 670. |
| KF | Used to compute factorial in poisson distribution computation. |
| MNPWR | Number of personnel available for organic repair. |
| N | Index for do loop 3. |
| NCRED | Date last critical equipment or data received. |
| NNCRE | Number of noncritical equipments and data. |
| NREP | Number of reparables. |
| SOH | Stock on hand at the end of the current day. |

## Coding

```
10*$RUN *=(ULIB,CORE=39K)GRADLIB/TSS.R;LIBRARY/APPLIB.R;
20*$DCMP.LIB/LIBRARY.R;AF,LIB/GLIBRARY.R
30 REAL NORMAL(2,74)
40 REAL MNCOMP(3,30,25),MD(24),MD1,K,KFAC,DDRC(3,31),CR
50 REAL CPIN ,PARTL
60 REAL MNCRED(2,5)
70 INTEGER CIR ,DCR ,SOM ,NREP ,ITH
80 DATA ((NORMAL(I,J),I=1,2),J=1,74)/.0001,-3.80,.0002,-3.61,.0003,
90 &-3.48,.0005,-3.3,.0007,-3.2,.001,-3.1,.0013,-3.,.0019,-2.9,
100 &.0026,-2.8,.0035,-2.7,.0047,-2.6,.0062,-2.5,.0082,-2.4,.0107,
110 &-2.3,.0139,-2.2,.0179,-2.1,.0228,-2.,.0287,-1.9,.0359,-1.8,
120 &.0446,-1.7,.0548,-1.6,.0668,-1.5,.0808,-1.4,.0968,-1.3,.1151,
130 &-1.2,.1357,-1.1,.1587,-1.,.1841,-.9,.2119,-.8,.2420,-.7,.2743,
140 &-.6,.3085,-.5,.3446,-.4,.3821,-.3,.4207,-.2,.4602,-.1,.5,0.0,
150 &.5398,.1,.5793,.2,.6179,.3,.6554,.4,.6915,.5,.7257,.6,.7580,.7,
160 &.7881,.8,.8159,.9,.8413,1.,.8643,1.1,.8849,1.2,.9032,1.3,.9192,
170 &1.4,.9332,1.5,.9452,1.6,.9554,1.7,.9641,1.8,.9713,1.9,.9772,2.,
180 &.9821,2.1,.9861,2.2,.9893,2.3,.9918,2.4,.9938,2.5,.9953,2.6,
190 &.9965,2.7,.9974,2.8,.9981,2.9,.9987,3.,.9990,3.1,.9993,3.2,.9995,
200 &3.3,.9997,3.39,.9998,3.49,.9999,3.62,1.,3.89/
210 DATA SOM1/283./
220 DATA (MD(I),I=1,24)/258.,258.,258.,229.,229.,229.,226.,
230&226.,226.,226.,226.,226.,226.,226.,226.,226.,226.,226.,
240&226.,226.,226.,226.,226.,226./
250 DATA CRL,TI1,MNPWR,AVFAC/114.,288.,83.,89/
260 DATA SD,NCRED,MNCRR/7.3343,91.0/
270 DATA ((MNCRED(I,J),I=1,2),J=1,5)/1.0,0.0,2.0,0.0,
280& 3.0,0.0,4.0,0.0,5.0,0.0/
290 DATA XLG,PCTDEV/-.657791,20./
299C COMPUTATION OF 30 DAY'S DEMANDS FOR EACH MONTH
300 DO 10 I=1,24
310 MD1=MD(I)/30
320 IF(MD1.LE.13) GOTO 650
329C NORMAL APPROXIMATION OF POISSON DISTRIBUTION
330 DO 699 J=1,30
340 X=RND(-1,0)
350 DO 670 J6=1,74
360 IF(X.LE.NORMAL(1,J6)) GOTO 680
370 670 CONTINUE
380 680 IMD1=MD1+.5+((MD1**.5)*NORMAL(2,J6))
390 MNCOMP(2,J,I)=IMD1
400 MNCOMP(3,J,I)=CRL/22
410 699 CONTINUE
420 GOTO 690
430 650 ADD=0


439C POISSON DISTRIBUTION OF DEMANDS
440 DO 3 N=1,31
450 DDRC(1,N)=N-1
460 K=DDRC(1,N)
470 KF=K
480 IF(KF.LE.1)GOTO 7
490 KFAC=KF
500 5 KFAC=KFAC*(KF-1)

510 KF=KF-1
```

```
520 IF(KF-1.LE.1) GOTO 20

530 GOTO 5
540 7 KFAC=1
550 20 DDRC(2,N)=(MD1**K)*(2.71828**(-MD1))/KFAC
560 ADD=ADD+DDRC(2,N)
570 DDRC(3,N)=ADD
580 IF(DDRC(3,N).GT.0.99999) GOTO 13
590 3 CONTINUE
599C RANDOM SELECTION OF DAY'S DEMAND
600 13 DO 30 J=1,30
610 X=RND(-1.0)
620 DO 25 JJ=1,31
630 IF(X.LE.DDRC(3,JJ)) GOTO 17
640 25 CONTINUE
650 17 MNCOMP(2,J,I)=DDRC(1,JJ)
660 MNCOMP(3,J,I)=CRL/22
670 30 CONTINUE
680 690 X=0
690 10 CONTINUE
700 SON=SON1
709C COMPUTE 24 MONTHS
710 DO 50 J=1,24
720 PRINT 300,J
730 300 FORMAT(//,1X,"MONTH",2X,I2)
740 PRINT 310:PRINT 350
750 310 FORMAT(1X,
760&"  BEGINNING                        ITEMS REPAIRED  ENDING  IN")
770 350 FORMAT(1X,
780&"DAY STOCK DEMAND REPARABLES CONTRACT ORGANIC STOCK WORK")
789C COMPUTE 30 DAYS FOR EACH MONTH
790 DO 40 I=1,30
799C DETERMINATION OF SATURDAY OR SUNDAY
800 II=II+1: IF(II.EQ.8)GOTO41
810 GOTO 42
820 41 II=1
830 42 SUN=0
840 IF(II.GE.6)GOTO 60
850 GOTO 80


860 60 IF(II.EQ.6) GOTO 70
870 SUN=1
880 70 MNCOMP(3,I,J)=0
890 80 MNCOMP(1,I,J)=SON
900 NREP=NREP+MNCOMP(2,I,J)
909C COMPUTATION OF CONTRACT REPAIR
910 CR=MNCOMP(3,I,J):CIR=0
920 CRIWA=0
930 IF(CRIW .GT.CR ) GOTO 120
940 IF(CRIW .NE.0) GOTO 110
950 CRIWA=0
960 GOTO 401
970 110 CR =CR -CRIW
980 CRIWA=1
990 CRIW =0
1000 401 IF(CR .GT.NREP ) GOTO 140
1010 IF(NREP .LE.0)GOTO 150
1020 IF(CR .LE.1) GOTO 130
1030 CIR =CR
1040 CRIW =CR -CIR

1050 NREP =NREP -CR
```

```
1060 GOTO 150
1070 130 CRIW =1-CR
1080 NREP =NREP -1
1090 GOTO 150
1100 140 CIR =NREP
1110 NREP =0
1120 GOTO 150
1130 120  CRIW =CRIW -CR
1140 150 IR=0
1140C COMPUTATION OF ORGANIC REPAIR
1150 IF(SUM.EQ.1) GOTO 260
1160 IF(NCRED.GT.(I+((J-1)*30)))GOTO 260
1170 FRT=TI1
1180 DO 175 J5=1,NNCRE
1190 IF(NNCRED(1,J5).GT.(I+((J-1)*30)))GOTO 170
1200 FRT=FRT-(TI1*NNCRED(2,J5))
1210 175 CONTINUE
1220 170 IF((NREP +PARTL ).LE.0)GOTO 260
1230 RTA=10.*NNPWR*AVFAC
1240 IF (PARTL .EQ.0) GOTO 195
1250 IF(PARTL .LE.RTA)GOTO 190
1260 PARTL =PARTL -RTA
1270 GOTO 260
1280 190 RTA=RTA-PARTL
1290 PARTL=0
1300 IR=1



1310 195 IF(NREP .EQ.0) GOTO 260
1320 NREP=NREP-1
1330 ITH =ITH +1
1340 IF(SB.NE.0)GOTO 200
1350 Y=FRT*(ITH **(XLC/.301029)); GOTO 210
1360 200 A1=FRT/((1+SB)**(XLC/.301029))
1370 Y=A1*((ITH +SB)**(XLC/.301029))
1380 210 RNDM=RND(-1.0)
1390 STDEV=Y*PCTDEV/100
1400 DO 220 J3=1,74
1410 IF(RNDM.LE.NORMAL(1,J3)) GOTO 230
1420 220 CONTINUE
1430 230 IF(RNDM.GT..0001) GOTO 231
1440 YTRU=Y+((.0001-RNDM)*(-100)-3.88)*STDEV
1450 GOTO 232
1460 231 YTRU=Y+((RNDM-NORMAL(1,(J3-1)))/(NORMAL(1,J3)-
1470& NORMAL(1,(J3-1)))*(NORMAL(2,J3)-NORMAL(2,(J3-1)))
1480& +NORMAL(2,(J3-1)))*STDEV
1490 232 IF(YTRU.GE.0) GOTO 245
1500 YTRU=0
1510 245 IF(YTRU.GT.RTA) GOTO 240
1520 RTA=RTA-YTRU
1530 IR=IR+1
1540 GOTO 195
1550 240 PARTL =YTRU-RTA
1560 260 SOH=NNCOMP(1,I,J)-NNCOMP(2,I,J)+CIR+CRIWA+IR
1570 ISOH=NNCOMP(1,I,J)
1580 IBDMB=NNCOMP(2,I,J)
1590 IF(PARTL.GT.0)GOTO 334
1600 IWO=0; GOTO 335
1610 334 IWO=1
1620 335 IF(CRIW.GT.0) GOTO 336
1630 IWC=0; GOTO 337

1640 336 IWC=1
```

```
337 ICREP=CIR+CRIWA

297 PRINT 330,I,ISOH,IDDMD,NREP,ICREP,IR,SOH,(INO+INC)
330 FORMAT(1X,I2,I7,I7,I11,I9,I8,I6,I5)
ICUMOR=ICUMOR+IR
ICUMCR=ICUMCR+ICREP
ICUMDMR=ICUMDMD+IDDMD
40 CONTINUE
PRINT,"CUMULATIVE DEMAND=          ",ICUMDMD
PRINT,"CUMULATIVE ORGANIC REPAIR=",ICUMOR
PRINT,"CUMULATIVE CONTRACT RPAIR=",ICUMCR
50 CONTINUE
333 FORMAT (V)
STOP
```

APPENDIX C

SIMULATION RESULTS

## APPENDIX C

## SIMULATION RESULTS

### Introduction

The simulation results in this section were selected to illustrate trends for each of the twelve programs completed for this study. The programs are divided into twelve annexes to this appendix to separate the results by the contractor performance levels--100 percent, 150 percent, and 0 percent of contract specified levels--and the four MTBFs--contract specified MTBF plus three assumed MTBFs to examine the results in the event that the contractor fails to achieve the guaranteed MTBF. Each annex will be identified by contractor performance level (CPL) and the MTBF used for that simulation.

The first eight months of the simulations for 100 percent and 150 percent CPL and 1,128 Hours MTBF are given to coincide with information presented in Figures III-A and III-B. Only the first three months of the 0 percent CPL and 1,128 Hours MTBF simulation are needed to develop the trends shown in Table III-C, since the organic capability is sufficient to meet demands generated plus fill the stockage objectives. The remaining program results show the initial month, the month in which maximum stock-outs occur, and the

months when repair capability again covers generated demands (or months giving the trend when repair will never meet total demands).

ANNEX I

100 PERCENT CPL
1,128 HOURS MTBF

MONTH 1

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 283 | 10 | 4 | 5 | 0 | 278 | 1 |
| 2 | 278 | 10 | 9 | 6 | 0 | 274 | 0 |
| 3 | 274 | 8 | 11 | 5 | 0 | 271 | 1 |
| 4 | 271 | 5 | 11 | 6 | 0 | 272 | 0 |
| 5 | 272 | 11 | 16 | 5 | 0 | 266 | 1 |
| 6 | 266 | 10 | 26 | 0 | 0 | 256 | 1 |
| 7 | 256 | 7 | 33 | 0 | 0 | 249 | 1 |
| 8 | 249 | 9 | 37 | 6 | 0 | 246 | 0 |
| 9 | 246 | 3 | 34 | 5 | 0 | 248 | 1 |
| 10 | 248 | 9 | 38 | 6 | 0 | 245 | 0 |
| 11 | 245 | 3 | 35 | 5 | 0 | 247 | 1 |
| 12 | 247 | 10 | 40 | 6 | 0 | 243 | 0 |
| 13 | 243 | 7 | 46 | 0 | 0 | 236 | 1 |
| 14 | 236 | 5 | 51 | 0 | 0 | 231 | 1 |
| 15 | 231 | 10 | 56 | 5 | 0 | 226 | 1 |
| 16 | 226 | 6 | 57 | 6 | 0 | 226 | 0 |
| 17 | 226 | 7 | 58 | 5 | 0 | 224 | 1 |
| 18 | 224 | 11 | 64 | 6 | 0 | 219 | 0 |
| 19 | 219 | 12 | 70 | 5 | 0 | 212 | 1 |
| 20 | 212 | 9 | 79 | 0 | 0 | 203 | 1 |
| 21 | 203 | 11 | 90 | 0 | 0 | 192 | 1 |
| 22 | 192 | 7 | 92 | 6 | 0 | 191 | 0 |
| 23 | 191 | 8 | 94 | 5 | 0 | 188 | 1 |
| 24 | 188 | 10 | 99 | 6 | 0 | 184 | 0 |
| 25 | 184 | 8 | 101 | 5 | 0 | 181 | 1 |
| 26 | 181 | 6 | 102 | 6 | 0 | 181 | 0 |
| 27 | 181 | 10 | 111 | 0 | 0 | 171 | 1 |
| 28 | 171 | 8 | 119 | 0 | 0 | 163 | 1 |
| 29 | 163 | 9 | 123 | 5 | 0 | 159 | 1 |
| 30 | 159 | 10 | 128 | 6 | 0 | 155 | 0 |

CUMULATIVE DEMAND= 249
CUMULATIVE ORGANIC REPAIR= 0
CUMULATIVE CONTRACT RPAIR= 121

MONTH 2

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 155 | 8 | 130 | 5 | 0 | 152 | 1 |
| 2 | 152 | 14 | 139 | 6 | 0 | 144 | 0 |
| 3 | 144 | 10 | 143 | 5 | 0 | 139 | 1 |
| 4 | 139 | 9 | 152 | 0 | 0 | 130 | 1 |
| 5 | 130 | 3 | 155 | 0 | 0 | 127 | 1 |
| 6 | 127 | 8 | 158 | 6 | 0 | 125 | 0 |
| 7 | 125 | 13 | 165 | 5 | 0 | 117 | 1 |
| 8 | 117 | 7 | 167 | 6 | 0 | 116 | 0 |
| 9 | 116 | 4 | 165 | 5 | 0 | 117 | 1 |
| 10 | 117 | 8 | 168 | 6 | 0 | 115 | 0 |
| 11 | 115 | 11 | 178 | 0 | 0 | 104 | 1 |
| 12 | 104 | 10 | 188 | 0 | 0 | 94 | 1 |
| 13 | 94 | 8 | 191 | 5 | 0 | 91 | 1 |
| 14 | 91 | 4 | 190 | 6 | 0 | 93 | 0 |
| 15 | 93 | 10 | 194 | 5 | 0 | 88 | 1 |
| 16 | 88 | 7 | 196 | 6 | 0 | 87 | 0 |
| 17 | 87 | 8 | 198 | 5 | 0 | 84 | 1 |
| 18 | 84 | 5 | 203 | 0 | 0 | 79 | 1 |
| 19 | 79 | 11 | 214 | 0 | 0 | 68 | 1 |
| 20 | 68 | 8 | 217 | 6 | 0 | 66 | 0 |
| 21 | 66 | 12 | 223 | 5 | 0 | 59 | 1 |
| 22 | 59 | 14 | 232 | 6 | 0 | 51 | 0 |
| 23 | 51 | 7 | 233 | 5 | 0 | 49 | 1 |
| 24 | 49 | 4 | 232 | 6 | 0 | 51 | 0 |
| 25 | 51 | 14 | 245 | 0 | 0 | 37 | 1 |
| 26 | 37 | 11 | 256 | 0 | 0 | 26 | 1 |
| 27 | 26 | 11 | 262 | 5 | 0 | 20 | 1 |
| 28 | 20 | 11 | 268 | 6 | 0 | 15 | 0 |
| 29 | 15 | 6 | 268 | 5 | 0 | 14 | 1 |
| 30 | 14 | 10 | 273 | 6 | 0 | 10 | 0 |

CUMULATIVE DEMAND= 515
CUMULATIVE ORGANIC REPAIR= 0
CUMULATIVE CONTRACT RPAIR= 242

MONTH 3

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 10 | 5 | 272 | 5 | 0 | 10 | 1 |
| 2 | 10 | 11 | 283 | 0 | 0 | -1 | 1 |
| 3 | -1 | 14 | 297 | 0 | 0 | -15 | 1 |
| 4 | -15 | 5 | 297 | 6 | 0 | -14 | 0 |
| 5 | -14 | 14 | 305 | 5 | 0 | -23 | 1 |
| 6 | -23 | 9 | 309 | 6 | 0 | -26 | 0 |
| 7 | -26 | 5 | 308 | 5 | 0 | -26 | 1 |
| 8 | -26 | 11 | 314 | 6 | 0 | -31 | 0 |
| 9 | -31 | 7 | 320 | 0 | 0 | -38 | 1 |
| 10 | -38 | 13 | 333 | 0 | 0 | -51 | 1 |
| 11 | -51 | 8 | 336 | 5 | 0 | -54 | 1 |
| 12 | -54 | 12 | 343 | 6 | 0 | -60 | 0 |
| 13 | -60 | 11 | 348 | 5 | 0 | -66 | 1 |
| 14 | -66 | 7 | 350 | 6 | 0 | -67 | 0 |
| 15 | -67 | 3 | 347 | 5 | 0 | -65 | 1 |
| 16 | -65 | 12 | 359 | 0 | 0 | -77 | 1 |
| 17 | -77 | 7 | 366 | 0 | 0 | -84 | 1 |
| 18 | -84 | 14 | 375 | 6 | 0 | -92 | 0 |
| 19 | -92 | 7 | 376 | 5 | 0 | -94 | 1 |
| 20 | -94 | 4 | 375 | 6 | 0 | -92 | 0 |
| 21 | -92 | 8 | 377 | 5 | 0 | -95 | 1 |
| 22 | -95 | 8 | 380 | 6 | 0 | -97 | 0 |
| 23 | -97 | 6 | 385 | 0 | 0 | -103 | 1 |
| 24 | -103 | 12 | 397 | 0 | 0 | -115 | 1 |
| 25 | -115 | 8 | 400 | 5 | 0 | -118 | 1 |
| 26 | -118 | 11 | 406 | 6 | 0 | -123 | 0 |
| 27 | -123 | 14 | 414 | 5 | 0 | -132 | 1 |
| 28 | -132 | 9 | 418 | 6 | 0 | -135 | 0 |
| 29 | -135 | 11 | 423 | 5 | 0 | -141 | 1 |
| 30 | -141 | 12 | 435 | 0 | 0 | -153 | 1 |

CUMULATIVE DEMAND= 793
CUMULATIVE ORGANIC REPAIR= 0
CUMULATIVE CONTRACT RPAIR= 357

MONTH 4

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | -153 | 4 | 439 | 0 | 0 | -157 | 1 |
| 2 | -157 | 3 | 433 | 6 | 3 | -151 | 1 |
| 3 | -151 | 9 | 432 | 5 | 4 | -151 | 2 |
| 4 | -151 | 12 | 435 | 6 | 4 | -153 | 1 |
| 5 | -153 | 8 | 434 | 5 | 3 | -153 | 2 |
| 6 | -153 | 11 | 436 | 6 | 4 | -154 | 1 |
| 7 | -154 | 10 | 440 | 0 | 5 | -159 | 2 |
| 8 | -159 | 6 | 446 | 0 | 0 | -165 | 2 |
| 9 | -165 | 9 | 446 | 5 | 4 | -165 | 2 |
| 10 | -165 | 6 | 443 | 6 | 4 | -161 | 1 |
| 11 | -161 | 5 | 436 | 5 | 6 | -155 | 2 |
| 12 | -155 | 8 | 434 | 6 | 5 | -152 | 1 |
| 13 | -152 | 8 | 431 | 5 | 5 | -150 | 2 |
| 14 | -150 | 4 | 430 | 0 | 5 | -149 | 2 |
| 15 | -149 | 6 | 436 | 0 | 0 | -155 | 2 |
| 16 | -155 | 8 | 433 | 6 | 6 | -151 | 1 |
| 17 | -151 | 7 | 429 | 5 | 5 | -148 | 2 |
| 18 | -148 | 5 | 423 | 6 | 6 | -141 | 1 |
| 19 | -141 | 6 | 418 | 5 | 5 | -137 | 2 |
| 20 | -137 | 6 | 412 | 6 | 7 | -130 | 1 |
| 21 | -130 | 6 | 411 | 0 | 6 | -130 | 2 |
| 22 | -130 | 9 | 420 | 0 | 0 | -139 | 2 |
| 23 | -139 | 7 | 416 | 5 | 6 | -135 | 2 |
| 24 | -135 | 11 | 416 | 6 | 6 | -134 | 1 |
| 25 | -134 | 8 | 412 | 5 | 6 | -131 | 2 |
| 26 | -131 | 8 | 409 | 6 | 6 | -127 | 1 |
| 27 | -127 | 7 | 405 | 5 | 5 | -124 | 2 |
| 28 | -124 | 7 | 405 | 0 | 7 | -124 | 2 |
| 29 | -124 | 4 | 409 | 0 | 0 | -128 | 2 |
| 30 | -128 | 5 | 403 | 6 | 6 | -121 | 1 |

CUMULATIVE DEMAND= 1006
CUMULATIVE ORGANIC REPAIR= 129
CUMULATIVE CONTRACT RPAIR= 473

MONTH 5

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | -121 | 5 | 395 | 5 | 7 | -114 | 2 |
| 2 | -114 | 4 | 389 | 6 | 5 | -107 | 1 |
| 3 | -107 | 11 | 387 | 5 | 7 | -106 | 2 |
| 4 | -106 | 7 | 384 | 6 | 5 | -102 | 1 |
| 5 | -102 | 5 | 381 | 0 | 7 | -100 | 2 |
| 6 | -100 | 9 | 390 | 0 | 0 | -109 | 2 |
| 7 | -109 | 14 | 392 | 5 | 7 | -111 | 2 |
| 8 | -111 | 7 | 388 | 6 | 6 | -106 | 1 |
| 9 | -106 | 9 | 384 | 5 | 7 | -103 | 2 |
| 10 | -103 | 12 | 385 | 6 | 6 | -103 | 1 |
| 11 | -103 | 5 | 378 | 5 | 6 | -97 | 2 |
| 12 | -97 | 8 | 379 | 0 | 7 | -98 | 2 |
| 13 | -98 | 2 | 381 | 0 | 0 | -100 | 2 |
| 14 | -100 | 6 | 376 | 6 | 6 | -94 | 1 |
| 15 | -94 | 7 | 370 | 5 | 7 | -89 | 2 |
| 16 | -89 | 9 | 368 | 6 | 6 | -86 | 1 |
| 17 | -86 | 7 | 362 | 5 | 7 | -81 | 2 |
| 18 | -81 | 12 | 363 | 6 | 6 | -81 | 1 |
| 19 | -81 | 5 | 361 | 0 | 6 | -80 | 2 |
| 20 | -80 | 10 | 371 | 0 | 0 | -90 | 2 |
| 21 | -90 | 6 | 365 | 5 | 7 | -84 | 2 |
| 22 | -84 | 7 | 360 | 6 | 7 | -78 | 1 |
| 23 | -78 | 6 | 353 | 5 | 7 | -72 | 2 |
| 24 | -72 | 11 | 351 | 6 | 8 | -69 | 1 |
| 25 | -69 | 7 | 345 | 5 | 7 | -64 | 2 |
| 26 | -64 | 10 | 348 | 0 | 7 | -67 | 2 |
| 27 | -67 | 8 | 356 | 0 | 0 | -75 | 2 |
| 28 | -75 | 6 | 350 | 6 | 7 | -68 | 1 |
| 29 | -68 | 9 | 346 | 5 | 7 | -65 | 2 |
| 30 | -65 | 6 | 339 | 6 | 8 | -57 | 1 |

CUMULATIVE DEMAND= 1236
CUMULATIVE ORGANIC REPAIR= 302
CUMULATIVE CONTRACT RPAIR= 594

MONTH 6

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | -57 | 7 | 333 | 5 | 7 | -52 | 2 |
| 2 | -52 | 7 | 329 | 6 | 6 | -47 | 1 |
| 3 | -47 | 9 | 330 | 0 | 7 | -49 | 2 |
| 4 | -49 | 6 | 336 | 0 | 0 | -55 | 2 |
| 5 | -55 | 6 | 330 | 5 | 7 | -49 | 2 |
| 6 | -49 | 11 | 329 | 6 | 7 | -47 | 1 |
| 7 | -47 | 6 | 322 | 5 | 7 | -41 | 2 |
| 8 | -41 | 8 | 318 | 6 | 7 | -36 | 1 |
| 9 | -36 | 4 | 309 | 5 | 7 | -28 | 2 |
| 10 | -28 | 11 | 312 | 0 | 8 | -31 | 2 |
| 11 | -31 | 13 | 325 | 0 | 0 | -44 | 2 |
| 12 | -44 | 9 | 322 | 6 | 7 | -40 | 1 |
| 13 | -40 | 11 | 319 | 5 | 8 | -38 | 2 |
| 14 | -38 | 11 | 317 | 6 | 8 | -35 | 1 |
| 15 | -35 | 8 | 312 | 5 | 7 | -31 | 2 |
| 16 | -31 | 6 | 306 | 6 | 7 | -24 | 1 |
| 17 | -24 | 15 | 313 | 0 | 7 | -32 | 2 |
| 18 | -32 | 2 | 315 | 0 | 0 | -34 | 2 |
| 19 | -34 | 11 | 314 | 5 | 7 | -33 | 2 |
| 20 | -33 | 13 | 314 | 6 | 8 | -32 | 1 |
| 21 | -32 | 14 | 314 | 5 | 8 | -33 | 2 |
| 22 | -33 | 6 | 308 | 6 | 7 | -26 | 1 |
| 23 | -26 | 7 | 301 | 5 | 8 | -20 | 2 |
| 24 | -20 | 5 | 298 | 0 | 8 | -17 | 2 |
| 25 | -17 | 11 | 309 | 0 | 0 | -28 | 2 |
| 26 | -28 | 4 | 300 | 6 | 8 | -18 | 1 |
| 27 | -18 | 9 | 295 | 5 | 8 | -14 | 2 |
| 28 | -14 | 5 | 287 | 6 | 8 | -5 | 1 |
| 29 | -5 | 6 | 278 | 5 | 9 | 3 | 2 |
| 30 | 3 | 5 | 270 | 6 | 8 | 12 | 1 |

CUMULATIVE DEMAND= 1482
CUMULATIVE ORGANIC REPAIR= 496
CUMULATIVE CONTRACT RPAIR= 715

MONTH 7

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 12 | 7 | 269 | 0 | 7 | 12 | 2 |
| 2 | 12 | 8 | 277 | 0 | 0 | 4 | 2 |
| 3 | 4 | 11 | 274 | 5 | 9 | 7 | 2 |
| 4 | 7 | 11 | 273 | 6 | 7 | 9 | 1 |
| 5 | 9 | 8 | 267 | 5 | 8 | 14 | 2 |
| 6 | 14 | 6 | 268 | 6 | 8 | 22 | 1 |
| 7 | 22 | 6 | 253 | 5 | 7 | 28 | 2 |
| 8 | 28 | 8 | 253 | 0 | 8 | 28 | 2 |
| 9 | 28 | 3 | 256 | 0 | 0 | 25 | 2 |
| 10 | 25 | 8 | 251 | 6 | 8 | 31 | 1 |
| 11 | 31 | 16 | 253 | 5 | 8 | 28 | 2 |
| 12 | 28 | 13 | 254 | 6 | 7 | 28 | 1 |
| 13 | 28 | 14 | 253 | 5 | 9 | 28 | 2 |
| 14 | 28 | 7 | 248 | 6 | 7 | 34 | 1 |
| 15 | 34 | 7 | 245 | 0 | 9 | 36 | 2 |
| 16 | 36 | 9 | 254 | 0 | 0 | 27 | 2 |
| 17 | 27 | 4 | 246 | 5 | 7 | 35 | 2 |
| 18 | 35 | 7 | 240 | 6 | 8 | 42 | 1 |
| 19 | 42 | 7 | 234 | 5 | 7 | 47 | 2 |
| 20 | 47 | 9 | 229 | 6 | 9 | 53 | 1 |
| 21 | 53 | 6 | 220 | 5 | 9 | 61 | 2 |
| 22 | 61 | 4 | 215 | 0 | 9 | 66 | 2 |
| 23 | 66 | 6 | 221 | 0 | 0 | 60 | 2 |
| 24 | 60 | 9 | 216 | 6 | 9 | 66 | 1 |
| 25 | 66 | 10 | 211 | 5 | 9 | 70 | 2 |
| 26 | 70 | 7 | 205 | 6 | 8 | 77 | 1 |
| 27 | 77 | 8 | 197 | 5 | 10 | 84 | 2 |
| 28 | 84 | 11 | 195 | 6 | 8 | 87 | 1 |
| 29 | 87 | 3 | 189 | 0 | 8 | 92 | 2 |
| 30 | 92 | 11 | 200 | 0 | 0 | 81 | 2 |

CUMULATIVE DEMAND= 1726
CUMULATIVE ORGANIC REPAIR= 699
CUMULATIVE CONTRACT RPAIR= 825

MONTH 8

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 81 | 7 | 193 | 5 | 9 | 88 | 2 |
| 2 | 88 | 7 | 186 | 6 | 9 | 96 | 1 |
| 3 | 96 | 7 | 179 | 5 | 8 | 102 | 2 |
| 4 | 102 | 8 | 174 | 6 | 8 | 108 | 1 |
| 5 | 108 | 8 | 168 | 5 | 8 | 113 | 2 |
| 6 | 113 | 7 | 166 | 0 | 9 | 115 | 2 |
| 7 | 115 | 9 | 175 | 0 | 0 | 106 | 2 |
| 8 | 106 | 6 | 166 | 6 | 10 | 116 | 1 |
| 9 | 116 | 8 | 168 | 5 | 8 | 121 | 2 |
| 10 | 121 | 11 | 157 | 6 | 9 | 125 | 1 |
| 11 | 125 | 6 | 147 | 5 | 10 | 134 | 2 |
| 12 | 134 | 8 | 142 | 6 | 8 | 140 | 1 |
| 13 | 140 | 5 | 137 | 0 | 9 | 144 | 2 |
| 14 | 144 | 7 | 144 | 0 | 0 | 137 | 2 |
| 15 | 137 | 10 | 141 | 5 | 8 | 140 | 2 |
| 16 | 140 | 6 | 134 | 6 | 8 | 148 | 1 |
| 17 | 148 | 7 | 127 | 5 | 8 | 154 | 2 |
| 18 | 154 | 12 | 124 | 6 | 10 | 158 | 1 |
| 19 | 158 | 2 | 111 | 5 | 9 | 170 | 2 |
| 20 | 170 | 5 | 108 | 0 | 8 | 173 | 2 |
| 21 | 173 | 10 | 118 | 0 | 0 | 163 | 2 |
| 22 | 163 | 7 | 111 | 6 | 9 | 171 | 1 |
| 23 | 171 | 11 | 107 | 5 | 9 | 174 | 2 |
| 24 | 174 | 6 | 100 | 6 | 8 | 182 | 1 |
| 25 | 182 | 6 | 91 | 5 | 9 | 190 | 2 |
| 26 | 190 | 3 | 80 | 6 | 9 | 202 | 1 |
| 27 | 202 | 8 | 77 | 0 | 10 | 204 | 2 |
| 28 | 204 | 6 | 83 | 0 | 0 | 198 | 2 |
| 29 | 198 | 8 | 77 | 5 | 9 | 204 | 2 |
| 30 | 204 | 5 | 68 | 6 | 9 | 214 | 1 |

CUMULATIVE DEMAND= 1942

CUMULATIVE ORGANIC REPAIR= 927
CUMULATIVE CONTRACT RPAIR= 946

ANNEX II

150 PERCENT CPL
1,128 HOURS MTBF

MONTH 1

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 283 | 8 | 0 | 7 | 0 | 282 | 1 |
| 2 | 282 | 7 | 0 | 8 | 0 | 283 | 0 |
| 3 | 283 | 10 | 2 | 7 | 0 | 280 | 1 |
| 4 | 280 | 9 | 4 | 8 | 0 | 279 | 0 |
| 5 | 279 | 5 | 1 | 7 | 0 | 281 | 1 |
| 6 | 281 | 4 | 5 | 0 | 0 | 277 | 1 |
| 7 | 277 | 6 | 11 | 0 | 0 | 271 | 1 |
| 8 | 271 | 8 | 12 | 8 | 0 | 271 | 0 |
| 9 | 271 | 11 | 15 | 7 | 0 | 267 | 1 |
| 10 | 267 | 8 | 16 | 8 | 0 | 267 | 0 |
| 11 | 267 | 6 | 14 | 7 | 0 | 268 | 1 |
| 12 | 268 | 6 | 13 | 8 | 0 | 270 | 0 |
| 13 | 270 | 11 | 23 | 0 | 0 | 259 | 1 |
| 14 | 259 | 12 | 35 | 0 | 0 | 247 | 1 |
| 15 | 247 | 8 | 36 | 7 | 0 | 246 | 1 |
| 16 | 246 | 5 | 34 | 8 | 0 | 249 | 0 |
| 17 | 249 | 5 | 31 | 7 | 0 | 251 | 1 |
| 18 | 251 | 12 | 36 | 8 | 0 | 247 | 0 |
| 19 | 247 | 15 | 43 | 7 | 0 | 239 | 1 |
| 20 | 239 | 11 | 54 | 0 | 0 | 228 | 1 |
| 21 | 228 | 14 | 68 | 0 | 0 | 214 | 1 |
| 22 | 214 | 6 | 67 | 8 | 0 | 216 | 0 |
| 23 | 216 | 8 | 67 | 7 | 0 | 215 | 1 |
| 24 | 215 | 13 | 73 | 8 | 0 | 210 | 0 |
| 25 | 210 | 11 | 76 | 7 | 0 | 206 | 1 |
| 26 | 206 | 7 | 76 | 8 | 0 | 207 | 0 |
| 27 | 207 | 8 | 83 | 0 | 0 | 199 | 1 |
| 28 | 199 | 4 | 87 | 0 | 0 | 195 | 1 |
| 29 | 195 | 10 | 90 | 7 | 0 | 192 | 1 |
| 30 | 192 | 7 | 90 | 8 | 0 | 193 | 0 |

CUMULATIVE DEMAND= 255
CUMULATIVE ORGANIC REPAIR= 0
CUMULATIVE CONTRACT RPAIR= 165

MONTH 2

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 193 | 13 | 95 | 7 | 0 | 187 | 1 |
| 2 | 187 | 3 | 91 | 8 | 0 | 192 | 0 |
| 3 | 192 | 21 | 104 | 7 | 0 | 178 | 1 |
| 4 | 178 | 7 | 111 | 0 | 0 | 171 | 1 |
| 5 | 171 | 10 | 121 | 0 | 0 | 161 | 1 |
| 6 | 161 | 11 | 125 | 8 | 0 | 158 | 0 |
| 7 | 158 | 5 | 122 | 7 | 0 | 160 | 1 |
| 8 | 160 | 7 | 122 | 8 | 0 | 161 | 0 |
| 9 | 161 | 12 | 126 | 7 | 0 | 156 | 1 |
| 10 | 156 | 11 | 130 | 8 | 0 | 153 | 0 |
| 11 | 153 | 5 | 134 | 0 | 0 | 148 | 1 |
| 12 | 148 | 5 | 139 | 0 | 0 | 143 | 1 |
| 13 | 143 | 7 | 139 | 7 | 0 | 143 | 1 |
| 14 | 143 | 7 | 139 | 8 | 0 | 144 | 0 |
| 15 | 144 | 10 | 141 | 7 | 0 | 141 | 1 |
| 16 | 141 | 5 | 139 | 8 | 0 | 144 | 0 |
| 17 | 144 | 9 | 140 | 7 | 0 | 142 | 1 |
| 18 | 142 | 4 | 144 | 0 | 0 | 138 | 1 |
| 19 | 138 | 10 | 154 | 0 | 0 | 128 | 1 |
| 20 | 128 | 7 | 154 | 8 | 0 | 129 | 0 |
| 21 | 129 | 8 | 154 | 7 | 0 | 128 | 1 |
| 22 | 128 | 6 | 153 | 8 | 0 | 130 | 0 |
| 23 | 130 | 8 | 153 | 7 | 0 | 129 | 1 |
| 24 | 129 | 10 | 156 | 8 | 0 | 127 | 0 |
| 25 | 127 | 13 | 168 | 0 | 0 | 114 | 1 |
| 26 | 114 | 7 | 175 | 0 | 0 | 107 | 1 |
| 27 | 107 | 15 | 183 | 7 | 0 | 99 | 1 |
| 28 | 99 | 8 | 184 | 8 | 0 | 99 | 0 |
| 29 | 99 | 10 | 186 | 7 | 0 | 96 | 1 |
| 30 | 96 | 11 | 190 | 8 | 0 | 93 | 0 |

CUMULATIVE DEMAND= 520
CUMULATIVE ORGANIC REPAIR= 0
CUMULATIVE CONTRACT RPAIR= 330

MONTH 3

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 93 | 7 | 189 | 7 | 0 | 93 | 1 |
| 2 | 93 | 4 | 193 | 0 | 0 | 89 | 1 |
| 3 | 89 | 13 | 206 | 0 | 0 | 76 | 1 |
| 4 | 76 | 12 | 211 | 8 | 0 | 72 | 0 |
| 5 | 72 | 11 | 214 | 7 | 0 | 68 | 1 |
| 6 | 68 | 9 | 216 | 8 | 0 | 67 | 0 |
| 7 | 67 | 12 | 220 | 7 | 0 | 62 | 1 |
| 8 | 62 | 12 | 225 | 8 | 0 | 58 | 0 |
| 9 | 58 | 9 | 233 | 0 | 0 | 49 | 1 |
| 10 | 49 | 4 | 237 | 0 | 0 | 45 | 1 |
| 11 | 45 | 6 | 236 | 7 | 0 | 46 | 1 |
| 12 | 46 | 14 | 243 | 8 | 0 | 40 | 0 |
| 13 | 40 | 5 | 240 | 7 | 0 | 42 | 1 |
| 14 | 42 | 4 | 237 | 8 | 0 | 46 | 0 |
| 15 | 46 | 9 | 238 | 7 | 0 | 44 | 1 |
| 16 | 44 | 9 | 247 | 0 | 0 | 35 | 1 |
| 17 | 35 | 5 | 252 | 0 | 0 | 30 | 1 |
| 18 | 30 | 10 | 255 | 8 | 0 | 28 | 0 |
| 19 | 28 | 6 | 253 | 7 | 0 | 29 | 1 |
| 20 | 29 | 7 | 253 | 8 | 0 | 30 | 0 |
| 21 | 30 | 13 | 258 | 7 | 0 | 24 | 1 |
| 22 | 24 | 7 | 258 | 8 | 0 | 25 | 0 |
| 23 | 25 | 5 | 262 | 0 | 0 | 20 | 1 |
| 24 | 20 | 7 | 269 | 0 | 0 | 13 | 1 |
| 25 | 13 | 12 | 274 | 7 | 0 | 8 | 1 |
| 26 | 8 | 13 | 280 | 8 | 0 | 3 | 0 |
| 27 | 3 | 13 | 285 | 7 | 0 | -3 | 1 |
| 28 | -3 | 8 | 286 | 8 | 0 | -3 | 0 |
| 29 | -3 | 10 | 288 | 7 | 0 | -6 | 1 |
| 30 | -6 | 11 | 299 | 0 | 0 | -17 | 1 |

CUMULATIVE DEMAND= 787
CUMULATIVE ORGANIC REPAIR= 0
CUMULATIVE CONTRACT RPAIR= 467

MONTH 4

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | -17 | 9 | 308 | 0 | 0 | -26 | 1 |
| 2 | -26 | 10 | 308 | 8 | 2 | -26 | 1 |
| 3 | -26 | 14 | 311 | 7 | 3 | -30 | 2 |
| 4 | -30 | 7 | 308 | 8 | 3 | -26 | 1 |
| 5 | -26 | 2 | 299 | 7 | 3 | -18 | 2 |
| 6 | -18 | 11 | 300 | 8 | 3 | -18 | 1 |
| 7 | -18 | 7 | 303 | 0 | 3 | -22 | 2 |
| 8 | -22 | 6 | 309 | 0 | 0 | -28 | 2 |
| 9 | -28 | 2 | 302 | 7 | 2 | -21 | 2 |
| 10 | -21 | 5 | 296 | 8 | 4 | -14 | 1 |
| 11 | -14 | 2 | 287 | 7 | 3 | -6 | 2 |
| 12 | -6 | 9 | 287 | 8 | 2 | -5 | 1 |
| 13 | -5 | 11 | 286 | 7 | 4 | -5 | 2 |
| 14 | -5 | 3 | 286 | 0 | 3 | -5 | 2 |
| 15 | -5 | 9 | 295 | 0 | 0 | -14 | 2 |
| 16 | -14 | 9 | 294 | 8 | 3 | -12 | 1 |
| 17 | -12 | 7 | 290 | 7 | 3 | -9 | 2 |
| 18 | -9 | 5 | 284 | 8 | 4 | -2 | 1 |
| 19 | -2 | 8 | 281 | 7 | 3 | 0 | 2 |
| 20 | 0 | 11 | 282 | 8 | 3 | 0 | 1 |
| 21 | 0 | 9 | 287 | 0 | 3 | -6 | 2 |
| 22 | -6 | 5 | 292 | 0 | 0 | -11 | 2 |
| 23 | -11 | 11 | 292 | 7 | 4 | -11 | 2 |
| 24 | -11 | 13 | 294 | 8 | 4 | -12 | 1 |
| 25 | -12 | 6 | 289 | 7 | 3 | -8 | 2 |
| 26 | -8 | 4 | 282 | 8 | 4 | 0 | 1 |
| 27 | 0 | 5 | 276 | 7 | 3 | 5 | 2 |
| 28 | 5 | 7 | 278 | 0 | 5 | 3 | 2 |
| 29 | 3 | 7 | 285 | 0 | 0 | -4 | 2 |
| 30 | -4 | 8 | 282 | 8 | 4 | 0 | 1 |

CUMULATIVE DEMAND= 1009

CUMULATIVE ORGANIC REPAIR= 81

CUMULATIVE CONTRACT RPAIR= 645

MONTH 5

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 0 | 9 | 279 | 7 | 4 | 2 | 2 |
| 2 | 2 | 6 | 274 | 8 | 4 | 8 | 1 |
| 3 | 8 | 5 | 268 | 7 | 3 | 13 | 2 |
| 4 | 13 | 5 | 262 | 8 | 4 | 20 | 1 |
| 5 | 20 | 11 | 267 | 0 | 5 | 14 | 2 |
| 6 | 14 | 6 | 273 | 0 | 0 | 8 | 2 |
| 7 | 8 | 4 | 267 | 7 | 3 | 14 | 2 |
| 8 | 14 | 9 | 265 | 8 | 4 | 17 | 1 |
| 9 | 17 | 8 | 262 | 7 | 3 | 19 | 2 |
| 10 | 19 | 10 | 260 | 8 | 5 | 22 | 1 |
| 11 | 22 | 8 | 256 | 7 | 4 | 25 | 2 |
| 12 | 25 | 12 | 265 | 0 | 3 | 16 | 2 |
| 13 | 16 | 6 | 271 | 0 | 0 | 10 | 2 |
| 14 | 10 | 2 | 261 | 8 | 5 | 21 | 1 |
| 15 | 21 | 9 | 258 | 7 | 4 | 23 | 2 |
| 16 | 23 | 6 | 252 | 8 | 5 | 30 | 1 |
| 17 | 30 | 7 | 248 | 7 | 3 | 33 | 2 |
| 18 | 33 | 7 | 244 | 8 | 4 | 38 | 1 |
| 19 | 38 | 7 | 246 | 0 | 4 | 35 | 2 |
| 20 | 35 | 7 | 253 | 0 | 0 | 28 | 2 |
| 21 | 28 | 11 | 253 | 7 | 4 | 28 | 2 |
| 22 | 28 | 4 | 245 | 8 | 5 | 37 | 1 |
| 23 | 37 | 9 | 242 | 7 | 4 | 39 | 2 |
| 24 | 39 | 7 | 238 | 8 | 4 | 44 | 1 |
| 25 | 44 | 6 | 231 | 7 | 5 | 50 | 2 |
| 26 | 50 | 8 | 235 | 0 | 4 | 46 | 2 |
| 27 | 46 | 5 | 240 | 0 | 0 | 41 | 2 |
| 28 | 41 | 9 | 238 | 8 | 4 | 44 | 1 |
| 29 | 44 | 5 | 230 | 7 | 5 | 51 | 2 |
| 30 | 51 | 6 | 225 | 8 | 4 | 57 | 1 |

CUMULATIVE DEMAND= 1223
CUMULATIVE ORGANIC REPAIR= 187
CUMULATIVE CONTRACT RPAIR= 810

MONTH 6

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 57 | 6 | 218 | 7 | 5 | 63 | 2 |
| 2 | 63 | 7 | 214 | 8 | 4 | 68 | 1 |
| 3 | 68 | 5 | 214 | 0 | 4 | 67 | 2 |
| 4 | 67 | 9 | 223 | 0 | 0 | 58 | 2 |
| 5 | 58 | 5 | 216 | 7 | 5 | 65 | 2 |
| 6 | 65 | 9 | 214 | 8 | 4 | 68 | 1 |
| 7 | 68 | 5 | 206 | 7 | 5 | 75 | 2 |
| 8 | 75 | 9 | 204 | 8 | 4 | 78 | 1 |
| 9 | 78 | 11 | 202 | 7 | 5 | 79 | 2 |
| 10 | 79 | 7 | 204 | 0 | 5 | 77 | 2 |
| 11 | 77 | 4 | 208 | 0 | 0 | 73 | 2 |
| 12 | 73 | 10 | 207 | 8 | 4 | 75 | 1 |
| 13 | 75 | 5 | 199 | 7 | 5 | 82 | 2 |
| 14 | 82 | 15 | 203 | 8 | 4 | 79 | 1 |
| 15 | 79 | 6 | 196 | 7 | 5 | 85 | 2 |
| 16 | 85 | 9 | 194 | 8 | 4 | 88 | 1 |
| 17 | 68 | 8 | 196 | 0 | 5 | 85 | 2 |
| 18 | 85 | 2 | 198 | 0 | 0 | 83 | 2 |
| 19 | 83 | 13 | 200 | 7 | 4 | 81 | 2 |
| 20 | 81 | 9 | 197 | 8 | 5 | 85 | 1 |
| 21 | 85 | 9 | 193 | 7 | 5 | 88 | 2 |
| 22 | 88 | 10 | 192 | 8 | 4 | 90 | 1 |
| 23 | 90 | 8 | 187 | 7 | 5 | 94 | 2 |
| 24 | 94 | 7 | 190 | 0 | 4 | 91 | 2 |
| 25 | 91 | 6 | 196 | 0 | 0 | 85 | 2 |
| 26 | 85 | 5 | 189 | 8 | 5 | 93 | 1 |
| 27 | 93 | 7 | 184 | 7 | 4 | 97 | 2 |
| 28 | 97 | 4 | 176 | 8 | 5 | 106 | 1 |
| 29 | 106 | 11 | 174 | 7 | 5 | 107 | 2 |
| 30 | 107 | 8 | 170 | 8 | 5 | 112 | 1 |

CUMULATIVE DEMAND= 1452
CUMULATIVE ORGANIC REPAIR= 306
CUMULATIVE CONTRACT RPAIR= 975

AD-A032 538 AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OHIO SCHO--ETC F/G 15/5
AN ANALYSIS OF USAF DEPOT LEVEL MAINTENANCE CAPABILITY TO MEET --ETC(U)
SEP 76 G W SHARP, J C TOSHACH

UNCLASSIFIED SLSR-15-76B NL

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ADA
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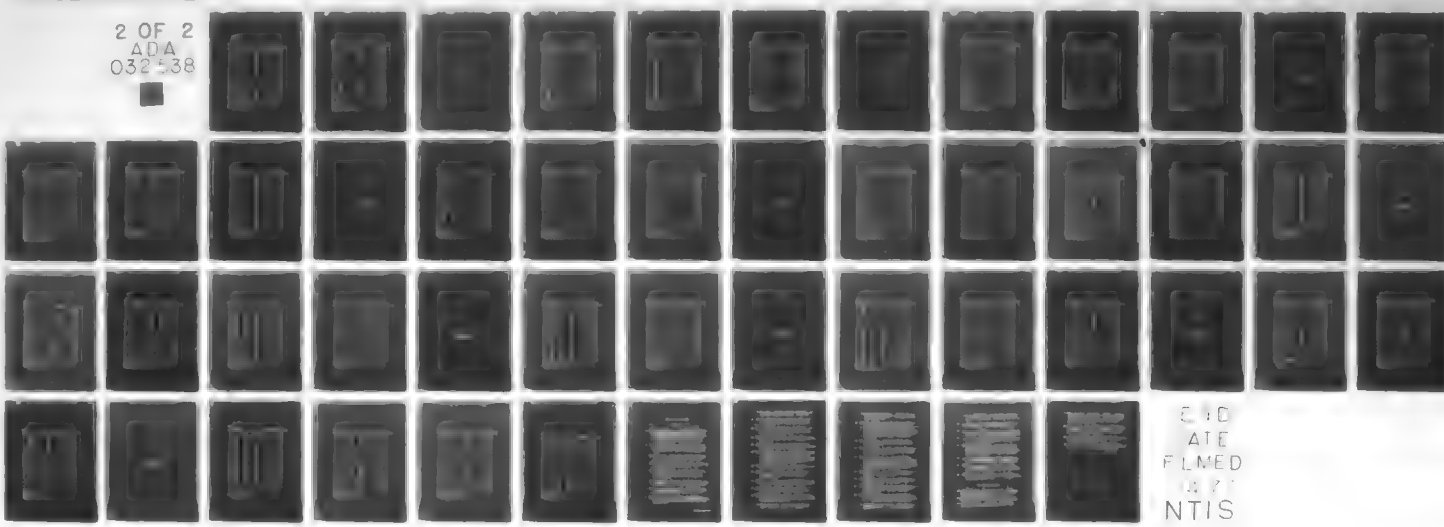

END
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FILMED
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MONTH 7

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 112 | 6 | 169 | 0 | 6 | 112 | 2 |
| 2 | 112 | 8 | 177 | 0 | 0 | 104 | 2 |
| 3 | 104 | 8 | 173 | 7 | 5 | 108 | 2 |
| 4 | 108 | 10 | 171 | 8 | 5 | 111 | 1 |
| 5 | 111 | 9 | 167 | 7 | 5 | 114 | 2 |
| 6 | 114 | 10 | 166 | 8 | 4 | 116 | 1 |
| 7 | 116 | 7 | 160 | 7 | 5 | 121 | 2 |
| 8 | 121 | 8 | 163 | 0 | 5 | 118 | 2 |
| 9 | 118 | 9 | 172 | 0 | 0 | 109 | 2 |
| 10 | 109 | 7 | 167 | 8 | 5 | 115 | 1 |
| 11 | 115 | 11 | 165 | 7 | 5 | 116 | 2 |
| 12 | 116 | 7 | 160 | 8 | 5 | 122 | 1 |
| 13 | 122 | 1 | 148 | 7 | 5 | 133 | 2 |
| 14 | 133 | 6 | 142 | 8 | 5 | 140 | 1 |
| 15 | 140 | 5 | 140 | 0 | 6 | 141 | 2 |
| 16 | 141 | 4 | 144 | 0 | 0 | 137 | 2 |
| 17 | 137 | 3 | 138 | 7 | 4 | 143 | 2 |
| 18 | 143 | 4 | 131 | 8 | 4 | 151 | 1 |
| 19 | 151 | [illegible] | 124 | 7 | 4 | 157 | 2 |
| 20 | 157 | 9 | 121 | 8 | 5 | 161 | 1 |
| 21 | 161 | 8 | 115 | 7 | 6 | 166 | 2 |
| 22 | 166 | 2 | 113 | 0 | 4 | 168 | 2 |
| 23 | 168 | 6 | 119 | 0 | 0 | 162 | 2 |
| 24 | 162 | 8 | 115 | 8 | 5 | 167 | 1 |
| 25 | 167 | 9 | 111 | 7 | 5 | 170 | 2 |
| 26 | 170 | 6 | 105 | 8 | 5 | 177 | 1 |
| 27 | 177 | 10 | 102 | 7 | 5 | 179 | 2 |
| 28 | 179 | 10 | 99 | 8 | 6 | 183 | 1 |
| 29 | 183 | 14 | 108 | 0 | 4 | 173 | 2 |
| 30 | 173 | 6 | 114 | 0 | 0 | 167 | 2 |

CUMULATIVE DEMAND= 1670

CUMULATIVE ORGANIC REPAIR= 429

CUMULATIVE CONTRACT RPAIR= 1125

MONTH 8

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 167 | 5 | 106 | 7 | 6 | 175 | 2 |
| 2 | 175 | 6 | 100 | 8 | 5 | 182 | 1 |
| 3 | 182 | 10 | 97 | 7 | 5 | 184 | 2 |
| 4 | 184 | 6 | 91 | 8 | 5 | 191 | 1 |
| 5 | 191 | 4 | 82 | 7 | 5 | 199 | 2 |
| 6 | 199 | 9 | 86 | 0 | 5 | 195 | 2 |
| 7 | 195 | 6 | 92 | 0 | 0 | 189 | 2 |
| 8 | 189 | 8 | 88 | 8 | 5 | 194 | 1 |
| 9 | 194 | 9 | 83 | 7 | 6 | 198 | 2 |
| 10 | 198 | 7 | 77 | 8 | 6 | 205 | 1 |
| 11 | 205 | 9 | 73 | 7 | 5 | 208 | 2 |
| 12 | 208 | 5 | 66 | 8 | 5 | 216 | 1 |
| 13 | 216 | 7 | 67 | 0 | 5 | 214 | 2 |
| 14 | 214 | 7 | 74 | 0 | 0 | 207 | 2 |
| 15 | 207 | 6 | 67 | 7 | 6 | 214 | 2 |
| 16 | 214 | 8 | 63 | 8 | 5 | 219 | 1 |
| 17 | 219 | 12 | 62 | 7 | 5 | 219 | 2 |
| 18 | 219 | 8 | 58 | 8 | 5 | 224 | 1 |
| 19 | 224 | 8 | 52 | 7 | 6 | 229 | 2 |
| 20 | 229 | 3 | 51 | 0 | 4 | 230 | 2 |
| 21 | 230 | 8 | 59 | 0 | 0 | 222 | 2 |
| 22 | 222 | 14 | 61 | 8 | 5 | 221 | 1 |
| 23 | 221 | 8 | 56 | 7 | 5 | 225 | 2 |
| 24 | 225 | 3 | 47 | 8 | 5 | 235 | 1 |
| 25 | 235 | 6 | 39 | 7 | 6 | 242 | 2 |
| 26 | 242 | 10 | 36 | 8 | 6 | 246 | 1 |
| 27 | 246 | 7 | 36 | 0 | 6 | 245 | 2 |
| 28 | 245 | 7 | 43 | 0 | 0 | 238 | 2 |
| 29 | 238 | 8 | 38 | 7 | 6 | 243 | 2 |
| 30 | 243 | 5 | 31 | 8 | 5 | 251 | 1 |

CUMULATIVE DEMAND= 1889
CUMULATIVE ORGANIC REPAIR= 567
CUMULATIVE CONTRACT RPAIR= 1290

## ANNEX III

0 PERCENT CPL
1,128 HOURS MTBF

MONTH 1

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 283 | 8 | 1 | 0 | 6 | 281 | 1 |
| 2 | 281 | 8 | 0 | 0 | 9 | 282 | 1 |
| 3 | 282 | 12 | 4 | 0 | 8 | 278 | 1 |
| 4 | 278 | 4 | 0 | 0 | 9 | 283 | 0 |
| 5 | 283 | 8 | 0 | 0 | 8 | 283 | 0 |
| 6 | 283 | 6 | 0 | 0 | 6 | 283 | 0 |
| 7 | 283 | 12 | 12 | 0 | 0 | 271 | 0 |
| 8 | 271 | 13 | 15 | 0 | 9 | 267 | 1 |
| 9 | 267 | 9 | 11 | 0 | 13 | 271 | 1 |
| 10 | 271 | 7 | 7 | 0 | 11 | 275 | 1 |
| 11 | 275 | 10 | 6 | 0 | 11 | 276 | 1 |
| 12 | 276 | 12 | 7 | 0 | 11 | 275 | 1 |
| 13 | 275 | 9 | 4 | 0 | 12 | 278 | 1 |
| 14 | 278 | 9 | 13 | 0 | 0 | 269 | 1 |
| 15 | 269 | 10 | 10 | 0 | 13 | 272 | 1 |
| 16 | 272 | 9 | 7 | 0 | 12 | 275 | 1 |
| 17 | 275 | 9 | 3 | 0 | 13 | 279 | 1 |
| 18 | 279 | 6 | 0 | 0 | 10 | 283 | 0 |
| 19 | 283 | 9 | 0 | 0 | 9 | 283 | 0 |
| 20 | 283 | 8 | 0 | 0 | 8 | 283 | 0 |
| 21 | 283 | 8 | 8 | 0 | 0 | 275 | 0 |
| 22 | 275 | 8 | 3 | 0 | 12 | 279 | 1 |
| 23 | 279 | 9 | 0 | 0 | 13 | 283 | 0 |
| 24 | 283 | 6 | 0 | 0 | 6 | 283 | 0 |
| 25 | 283 | 5 | 0 | 0 | 5 | 283 | 0 |
| 26 | 283 | 7 | 0 | 0 | 7 | 283 | 0 |
| 27 | 283 | 4 | 0 | 0 | 4 | 283 | 0 |
| 28 | 283 | 8 | 8 | 0 | 0 | 275 | 0 |
| 29 | 275 | 4 | 0 | 0 | 12 | 283 | 0 |
| 30 | 283 | 5 | 0 | 0 | 5 | 283 | 0 |

CUMULATIVE DEMAND= 242
CUMULATIVE ORGANIC REPAIR= 242
CUMULATIVE CONTRACT RPAIR= 0

MONTH 2

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 283 | 9 | 0 | 0 | 9 | 283 | 0 |
| 2 | 283 | 14 | 0 | 0 | 13 | 282 | 1 |
| 3 | 282 | 7 | 0 | 0 | 8 | 283 | 0 |
| 4 | 283 | 6 | 0 | 0 | 6 | 283 | 0 |
| 5 | 283 | 11 | 11 | 0 | 0 | 272 | 0 |
| 6 | 272 | 14 | 12 | 0 | 12 | 270 | 1 |
| 7 | 270 | 11 | 9 | 0 | 14 | 273 | 1 |
| 8 | 273 | 5 | 0 | 0 | 14 | 282 | 1 |
| 9 | 282 | 9 | 0 | 0 | 10 | 283 | 0 |
| 10 | 283 | 11 | 0 | 0 | 11 | 283 | 0 |
| 11 | 283 | 7 | 0 | 0 | 7 | 283 | 0 |
| 12 | 283 | 13 | 13 | 0 | 0 | 270 | 0 |
| 13 | 270 | 9 | 6 | 0 | 15 | 276 | 1 |
| 14 | 276 | 7 | 0 | 0 | 14 | 283 | 0 |
| 15 | 283 | 8 | 0 | 0 | 8 | 283 | 0 |
| 16 | 283 | 4 | 0 | 0 | 4 | 283 | 0 |
| 17 | 283 | 5 | 0 | 0 | 5 | 283 | 0 |
| 18 | 283 | 8 | 0 | 0 | 8 | 283 | 0 |
| 19 | 283 | 9 | 9 | 0 | 0 | 274 | 0 |
| 20 | 274 | 17 | 10 | 0 | 15 | 272 | 1 |
| 21 | 272 | 6 | 0 | 0 | 16 | 282 | 1 |
| 22 | 282 | 11 | 0 | 0 | 12 | 283 | 0 |
| 23 | 283 | 7 | 0 | 0 | 7 | 283 | 0 |
| 24 | 283 | 12 | 0 | 0 | 12 | 283 | 0 |
| 25 | 283 | 11 | 0 | 0 | 11 | 283 | 0 |
| 26 | 283 | 6 | 6 | 0 | 0 | 277 | 0 |
| 27 | 277 | 9 | 0 | 0 | 15 | 283 | 0 |
| 28 | 283 | 11 | 0 | 0 | 11 | 283 | 0 |
| 29 | 283 | 13 | 0 | 0 | 13 | 283 | 0 |
| 30 | 283 | 13 | 0 | 0 | 13 | 283 | 0 |

CUMULATIVE DEMAND= 525
CUMULATIVE ORGANIC REPAIR= 525
CUMULATIVE CONTRACT RPAIR= 0

MONTH 3

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 283 | 13 | 0 | 0 | 13 | 283 | 0 |
| 2 | 283 | 5 | 0 | 0 | 5 | 283 | 0 |
| 3 | 283 | 10 | 10 | 0 | 0 | 273 | 0 |
| 4 | 273 | 11 | 4 | 0 | 16 | 278 | 1 |
| 5 | 278 | 4 | 0 | 0 | 9 | 283 | 0 |
| 6 | 283 | 8 | 0 | 0 | 8 | 283 | 0 |
| 7 | 283 | 10 | 0 | 0 | 10 | 283 | 0 |
| 8 | 283 | 7 | 0 | 0 | 7 | 283 | 0 |
| 9 | 283 | 9 | 0 | 0 | 9 | 283 | 0 |
| 10 | 283 | 7 | 7 | 0 | 0 | 276 | 0 |
| 11 | 276 | 4 | 0 | 0 | 11 | 283 | 0 |
| 12 | 283 | 11 | 0 | 0 | 11 | 283 | 0 |
| 13 | 283 | 12 | 0 | 0 | 12 | 283 | 0 |
| 14 | 283 | 10 | 0 | 0 | 10 | 283 | 0 |
| 15 | 283 | 15 | 0 | 0 | 15 | 283 | 0 |
| 16 | 283 | 11 | 0 | 0 | 11 | 283 | 0 |
| 17 | 283 | 10 | 10 | 0 | 0 | 273 | 0 |
| 18 | 273 | 5 | 0 | 0 | 15 | 283 | 0 |
| 19 | 283 | 7 | 0 | 0 | 7 | 283 | 0 |
| 20 | 283 | 9 | 0 | 0 | 9 | 283 | 0 |
| 21 | 283 | 14 | 0 | 0 | 14 | 283 | 0 |
| 22 | 283 | 4 | 0 | 0 | 4 | 283 | 0 |
| 23 | 283 | 9 | 0 | 0 | 9 | 283 | 0 |
| 24 | 283 | 6 | 6 | 0 | 0 | 277 | 0 |
| 25 | 277 | 10 | 0 | 0 | 16 | 283 | 0 |
| 26 | 283 | 7 | 0 | 0 | 7 | 283 | 0 |
| 27 | 283 | 9 | 0 | 0 | 9 | 283 | 0 |
| 28 | 283 | 10 | 0 | 0 | 10 | 283 | 0 |
| 29 | 283 | 5 | 0 | 0 | 5 | 283 | 0 |
| 30 | 283 | 10 | 0 | 0 | 10 | 283 | 0 |

CUMULATIVE DEMAND= 787
CUMULATIVE ORGANIC REPAIR= 787
CUMULATIVE CONTRACT RPAIR= 0

ANNEX IV

100 PERCENT CPL
1,000 HOURS MTBF

MONTH 1

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 311 | 9 | 3 | 5 | 0 | 307 | 1 |
| 2 | 307 | 11 | 9 | 6 | 0 | 302 | 0 |
| 3 | 302 | 5 | 8 | 5 | 0 | 302 | 1 |
| 4 | 302 | 7 | 10 | 6 | 0 | 301 | 0 |
| 5 | 301 | 7 | 11 | 5 | 0 | 299 | 1 |
| 6 | 299 | 4 | 15 | 0 | 0 | 295 | 1 |
| 7 | 295 | 8 | 23 | 0 | 0 | 287 | 1 |
| 8 | 287 | 4 | 22 | 6 | 0 | 289 | 0 |
| 9 | 289 | 7 | 23 | 5 | 0 | 287 | 1 |
| 10 | 287 | 6 | 24 | 6 | 0 | 287 | 0 |
| 11 | 287 | 4 | 22 | 5 | 0 | 288 | 1 |
| 12 | 288 | 8 | 25 | 6 | 0 | 286 | 0 |
| 13 | 286 | 8 | 32 | 0 | 0 | 278 | 1 |
| 14 | 278 | 7 | 39 | 0 | 0 | 271 | 1 |
| 15 | 271 | 6 | 40 | 5 | 0 | 270 | 1 |
| 16 | 270 | 16 | 51 | 6 | 0 | 260 | 0 |
| 17 | 260 | 7 | 52 | 5 | 0 | 258 | 1 |
| 18 | 258 | 11 | 58 | 6 | 0 | 253 | 0 |
| 19 | 253 | 5 | 57 | 5 | 0 | 253 | 1 |
| 20 | 253 | 6 | 63 | 0 | 0 | 247 | 1 |
| 21 | 247 | 10 | 73 | 0 | 0 | 237 | 1 |
| 22 | 237 | 6 | 74 | 6 | 0 | 237 | 0 |
| 23 | 237 | 5 | 73 | 5 | 0 | 237 | 1 |
| 24 | 237 | 8 | 76 | 6 | 0 | 235 | 0 |
| 25 | 235 | 9 | 79 | 5 | 0 | 231 | 1 |
| 26 | 231 | 9 | 83 | 6 | 0 | 228 | 0 |
| 27 | 228 | 12 | 94 | 0 | 0 | 216 | 1 |
| 28 | 216 | 11 | 105 | 0 | 0 | 205 | 1 |
| 29 | 205 | 14 | 114 | 5 | 0 | 196 | 1 |
| 30 | 196 | 9 | 118 | 6 | 0 | 193 | 0 |

CUMULATIVE DEMAND= 239
CUMULATIVE ORGANIC REPAIR= 0
CUMULATIVE CONTRACT RPAIR= 121

MONTH 3

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 27 | 10 | 288 | 5 | 0 | 22 | 1 |
| 2 | 22 | 7 | 295 | 0 | 0 | 15 | 1 |
| 3 | 15 | 12 | 307 | 0 | 0 | 3 | 1 |
| 4 | 3 | 11 | 313 | 6 | 0 | -2 | 0 |
| 5 | -2 | 12 | 319 | 5 | 0 | -9 | 1 |
| 6 | -9 | 7 | 321 | 6 | 0 | -10 | 0 |
| 7 | -10 | 7 | 322 | 5 | 0 | -12 | 1 |
| 8 | -12 | 10 | 327 | 6 | 0 | -16 | 0 |
| 9 | -16 | 6 | 332 | 0 | 0 | -22 | 1 |
| 10 | -22 | 14 | 346 | 0 | 0 | -36 | 1 |
| 11 | -36 | 9 | 350 | 5 | 0 | -40 | 1 |
| 12 | -40 | 13 | 358 | 6 | 0 | -47 | 0 |
| 13 | -47 | 9 | 361 | 5 | 0 | -51 | 1 |
| 14 | -51 | 9 | 365 | 6 | 0 | -54 | 0 |
| 15 | -54 | 11 | 370 | 5 | 0 | -60 | 1 |
| 16 | -60 | 11 | 381 | 0 | 0 | -71 | 1 |
| 17 | -71 | 10 | 391 | 0 | 0 | -81 | 1 |
| 18 | -81 | 6 | 392 | 6 | 0 | -81 | 0 |
| 19 | -81 | 5 | 391 | 5 | 0 | -81 | 1 |
| 20 | -81 | 6 | 392 | 6 | 0 | -81 | 0 |
| 21 | -81 | 17 | 403 | 5 | 0 | -93 | 1 |
| 22 | -93 | 10 | 408 | 6 | 0 | -97 | 0 |
| 23 | -97 | 7 | 414 | 0 | 0 | -104 | 1 |
| 24 | -104 | 10 | 424 | 0 | 0 | -114 | 1 |
| 25 | -114 | 11 | 430 | 5 | 0 | -120 | 1 |
| 26 | -120 | 16 | 441 | 6 | 0 | -130 | 0 |
| 27 | -130 | 9 | 444 | 5 | 0 | -134 | 1 |
| 28 | -134 | 13 | 452 | 6 | 0 | -141 | 0 |
| 29 | -141 | 7 | 453 | 5 | 0 | -143 | 1 |
| 30 | -143 | 7 | 460 | 0 | 0 | -150 | 1 |

CUMULATIVE DEMAND= 818
CUMULATIVE ORGANIC REPAIR= 0
CUMULATIVE CONTRACT RPAIR= 357

MONTH 7

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | -69 | 7 | 378 | 0 | 7 | -69 | 2 |
| 2 | -69 | 8 | 386 | 0 | 0 | -77 | 2 |
| 3 | -77 | 9 | 382 | 5 | 8 | -73 | 2 |
| 4 | -73 | 5 | 374 | 6 | 8 | -64 | 1 |
| 5 | -64 | 8 | 367 | 5 | 9 | -58 | 2 |
| 6 | -58 | 11 | 367 | 6 | 6 | -57 | 1 |
| 7 | -57 | 12 | 365 | 5 | 8 | -56 | 2 |
| 8 | -56 | 8 | 365 | 0 | 8 | -56 | 2 |
| 9 | -56 | 11 | 376 | 0 | 0 | -67 | 2 |
| 10 | -67 | 5 | 369 | 6 | 7 | -59 | 1 |
| 11 | -59 | 6 | 359 | 5 | 10 | -50 | 2 |
| 12 | -50 | 5 | 352 | 6 | 7 | -42 | 1 |
| 13 | -42 | 6 | 344 | 5 | 8 | -35 | 2 |
| 14 | -35 | 5 | 336 | 6 | 8 | -26 | 1 |
| 15 | -26 | 9 | 336 | 0 | 8 | -27 | 2 |
| 16 | -27 | 8 | 344 | 0 | 0 | -35 | 2 |
| 17 | -35 | 6 | 337 | 5 | 8 | -28 | 2 |
| 18 | -28 | 10 | 333 | 6 | 9 | -23 | 1 |
| 19 | -23 | 10 | 330 | 5 | 7 | -21 | 2 |
| 20 | -21 | 6 | 323 | 6 | 8 | -13 | 1 |
| 21 | -13 | 7 | 317 | 5 | 7 | -8 | 2 |
| 22 | -8 | 8 | 316 | 0 | 9 | -7 | 2 |
| 23 | -7 | 5 | 321 | 0 | 0 | -12 | 2 |
| 24 | -12 | 4 | 312 | 6 | 8 | -2 | 1 |
| 25 | -2 | 7 | 305 | 5 | 8 | 4 | 2 |
| 26 | 4 | 5 | 297 | 6 | 8 | 13 | 1 |
| 27 | 13 | 12 | 294 | 5 | 9 | 15 | 2 |
| 28 | 15 | 6 | 288 | 6 | 7 | 22 | 1 |
| 29 | 22 | 13 | 291 | 0 | 9 | 18 | 2 |
| 30 | 18 | 13 | 304 | 0 | 0 | 5 | 2 |

CUMULATIVE DEMAND= 1816
CUMULATIVE ORGANIC REPAIR= 685
CUMULATIVE CONTRACT RPAIR= 825

ANNEX V

150 PERCENT CPL
1,000 HOURS MTBF

MONTH 1

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 311 | 6 | 0 | 6 | 0 | 311 | 0 |
| 2 | 311 | 8 | 0 | 8 | 0 | 311 | 0 |
| 3 | 311 | 14 | 5 | 8 | 0 | 305 | 1 |
| 4 | 305 | 8 | 5 | 9 | 0 | 306 | 0 |
| 5 | 306 | 10 | 6 | 8 | 0 | 304 | 1 |
| 6 | 304 | 12 | 18 | 0 | 0 | 292 | 1 |
| 7 | 292 | 6 | 24 | 0 | 0 | 286 | 1 |
| 8 | 286 | 13 | 29 | 9 | 0 | 282 | 0 |
| 9 | 282 | 8 | 28 | 8 | 0 | 282 | 1 |
| 10 | 282 | 9 | 29 | 9 | 0 | 282 | 0 |
| 11 | 282 | 10 | 30 | 8 | 0 | 280 | 1 |
| 12 | 280 | 15 | 37 | 9 | 0 | 274 | 0 |
| 13 | 274 | 9 | 45 | 0 | 0 | 265 | 1 |
| 14 | 265 | 9 | 54 | 0 | 0 | 256 | 1 |
| 15 | 256 | 4 | 50 | 8 | 0 | 260 | 1 |
| 16 | 260 | 10 | 52 | 9 | 0 | 259 | 0 |
| 17 | 259 | 8 | 51 | 8 | 0 | 259 | 1 |
| 18 | 259 | 10 | 53 | 9 | 0 | 258 | 0 |
| 19 | 258 | 7 | 51 | 8 | 0 | 259 | 1 |
| 20 | 259 | 9 | 60 | 0 | 0 | 250 | 1 |
| 21 | 250 | 11 | 71 | 0 | 0 | 239 | 1 |
| 22 | 239 | 9 | 72 | 9 | 0 | 239 | 0 |
| 23 | 239 | 2 | 65 | 8 | 0 | 245 | 1 |
| 24 | 245 | 9 | 66 | 9 | 0 | 245 | 0 |
| 25 | 245 | 14 | 71 | 8 | 0 | 239 | 1 |
| 26 | 239 | 6 | 69 | 9 | 0 | 242 | 0 |
| 27 | 242 | 4 | 72 | 0 | 0 | 238 | 1 |
| 28 | 238 | 6 | 78 | 0 | 0 | 232 | 1 |
| 29 | 232 | 10 | 80 | 8 | 0 | 230 | 1 |
| 30 | 230 | 11 | 83 | 9 | 0 | 228 | 0 |

CUMULATIVE DEMAND= 267
CUMULATIVE ORGANIC REPAIR= 0
CUMULATIVE CONTRACT RPAIR= 184

MONTH 3

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 98 | 8 | 212 | 8 | 0 | 98 | 1 |
| 2 | 98 | 9 | 221 | 0 | 0 | 89 | 1 |
| 3 | 89 | 11 | 232 | 0 | 0 | 78 | 1 |
| 4 | 78 | 11 | 235 | 9 | 0 | 76 | 0 |
| 5 | 76 | 9 | 235 | 8 | 0 | 75 | 1 |
| 6 | 75 | 12 | 239 | 9 | 0 | 72 | 0 |
| 7 | 72 | 13 | 243 | 8 | 0 | 67 | 1 |
| 8 | 67 | 9 | 244 | 9 | 0 | 67 | 0 |
| 9 | 67 | 9 | 252 | 0 | 0 | 58 | 1 |
| 10 | 58 | 9 | 261 | 0 | 0 | 49 | 1 |
| 11 | 49 | 7 | 260 | 8 | 0 | 50 | 1 |
| 12 | 50 | 12 | 264 | 9 | 0 | 47 | 0 |
| 13 | 47 | 14 | 269 | 8 | 0 | 41 | 1 |
| 14 | 41 | 6 | 267 | 9 | 0 | 44 | 0 |
| 15 | 44 | 7 | 265 | 8 | 0 | 45 | 1 |
| 16 | 45 | 5 | 270 | 0 | 0 | 40 | 1 |
| 17 | 40 | 7 | 277 | 0 | 0 | 33 | 1 |
| 18 | 33 | 10 | 279 | 9 | 0 | 32 | 0 |
| 19 | 32 | 14 | 284 | 8 | 0 | 26 | 1 |
| 20 | 26 | 7 | 283 | 9 | 0 | 28 | 0 |
| 21 | 28 | 8 | 282 | 8 | 0 | 28 | 1 |
| 22 | 28 | 12 | 286 | 9 | 0 | 25 | 0 |
| 23 | 25 | 14 | 299 | 0 | 0 | 11 | 1 |
| 24 | 11 | 9 | 308 | 0 | 0 | 2 | 1 |
| 25 | 2 | 6 | 306 | 8 | 0 | 4 | 1 |
| 26 | 4 | 16 | 314 | 9 | 0 | -3 | 0 |
| 27 | -3 | 16 | 321 | 8 | 0 | -11 | 1 |
| 28 | -11 | 9 | 322 | 9 | 0 | -11 | 0 |
| 29 | -11 | 10 | 323 | 8 | 0 | -13 | 1 |
| 30 | -13 | 8 | 331 | 0 | 0 | -21 | 1 |

CUMULATIVE DEMAND= 881
CUMULATIVE ORGANIC REPAIR= 0
CUMULATIVE CONTRACT RPAIR= 549

MONTH 4

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | 'TEMS REPAIRED CONTRACT | ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | -21 | 4 | 335 | 0 | 0 | -25 | 1 |
| 2 | -25 | 7 | 331 | 9 | 2 | -21 | 1 |
| 3 | -21 | 8 | 327 | 8 | 3 | -18 | 2 |
| 4 | -18 | 6 | 323 | 9 | 2 | -13 | 1 |
| 5 | -13 | 10 | 321 | 8 | 3 | -12 | 2 |
| 6 | -12 | 10 | 319 | 9 | 4 | -9 | 1 |
| 7 | -9 | 7 | 322 | 0 | 3 | -13 | 2 |
| 8 | -13 | 7 | 329 | 0 | 0 | -20 | 2 |
| 9 | -20 | 7 | 326 | 8 | 2 | -17 | 2 |
| 10 | -17 | 7 | 321 | 9 | 4 | -11 | 1 |
| 11 | -11 | 12 | 321 | 8 | 3 | -12 | 2 |
| 12 | -12 | 11 | 321 | 9 | 3 | -11 | 1 |
| 13 | -11 | 4 | 313 | 8 | 3 | -4 | 2 |
| 14 | -4 | 7 | 317 | 0 | 3 | -8 | 2 |
| 15 | -8 | 9 | 326 | 0 | 0 | -17 | 2 |
| 16 | -17 | 7 | 322 | 9 | 3 | -12 | 1 |
| 17 | -12 | 10 | 319 | 8 | 4 | -10 | 2 |
| 18 | -10 | 10 | 317 | 9 | 4 | -7 | 1 |
| 19 | -7 | 10 | 315 | 8 | 3 | -6 | 2 |
| 20 | -6 | 10 | 313 | 9 | 4 | -3 | 1 |
| 21 | -3 | 9 | 317 | 0 | 4 | -8 | 2 |
| 22 | -8 | 11 | 328 | 0 | 0 | -19 | 2 |
| 23 | -19 | 7 | 324 | 8 | 3 | -15 | 2 |
| 24 | -15 | 11 | 323 | 9 | 4 | -13 | 1 |
| 25 | -13 | 6 | 316 | 8 | 4 | -7 | 2 |
| 26 | -7 | 4 | 309 | 9 | 3 | 1 | 1 |
| 27 | 1 | 11 | 308 | 8 | 3 | 1 | 2 |
| 28 | 1 | 12 | 316 | 0 | 4 | -7 | 2 |
| 29 | -7 | 7 | 323 | 0 | 0 | -14 | 2 |
| 30 | -14 | 10 | 320 | 9 | 5 | -10 | 1 |

CUMULATIVE DEMAND= 1132
CUMULATIVE ORGANIC REPAIR= 83
CUMULATIVE CONTRACT RPAIR= 728

MONTH 5

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | -10 | 5 | 312 | 8 | 4 | -3 | 2 |
| 2 | -3 | 4 | 305 | 9 | 3 | 5 | 1 |
| 3 | 5 | 12 | 304 | 8 | 4 | 5 | 2 |
| 4 | 5 | 8 | 299 | 9 | 5 | 11 | 1 |
| 5 | 11 | 6 | 301 | 0 | 3 | 8 | 2 |
| 6 | 8 | 9 | 310 | 0 | 0 | -1 | 2 |
| 7 | -1 | 9 | 306 | 8 | 5 | 3 | 2 |
| 8 | 3 | 14 | 308 | 9 | 4 | 2 | 1 |
| 9 | 2 | 16 | 310 | 8 | 5 | -1 | 2 |
| 10 | -1 | 10 | 308 | 9 | 4 | 2 | 1 |
| 11 | 2 | 9 | 305 | 8 | 3 | 4 | 2 |
| 12 | 4 | 11 | 311 | 0 | 5 | -2 | 2 |
| 13 | -2 | 10 | 321 | 0 | 0 | -12 | 2 |
| 14 | -12 | 11 | 320 | 9 | 4 | -10 | 1 |
| 15 | -10 | 6 | 313 | 8 | 4 | -4 | 2 |
| 16 | -4 | 7 | 308 | 9 | 4 | 2 | 1 |
| 17 | 2 | 6 | 302 | 8 | 3 | 7 | 2 |
| 18 | 7 | 8 | 298 | 9 | 4 | 12 | 1 |
| 19 | 12 | 6 | 299 | 0 | 4 | 10 | 2 |
| 20 | 10 | 4 | 303 | 0 | 0 | 6 | 2 |
| 21 | 6 | 9 | 299 | 8 | 5 | 10 | 2 |
| 22 | 10 | 6 | 293 | 9 | 4 | 17 | 1 |
| 23 | 17 | 11 | 291 | 8 | 4 | 18 | 2 |
| 24 | 18 | 9 | 288 | 9 | 4 | 22 | 1 |
| 25 | 22 | 9 | 284 | 8 | 4 | 25 | 2 |
| 26 | 25 | 11 | 291 | 0 | 4 | 18 | 2 |
| 27 | 18 | 5 | 296 | 0 | 0 | 13 | 2 |
| 28 | 13 | 5 | 289 | 9 | 4 | 21 | 1 |
| 29 | 21 | 8 | 284 | 8 | 4 | 25 | 2 |
| 30 | 25 | 8 | 279 | 9 | 5 | 31 | 1 |

CUMULATIVE DEMAND= 1384
CUMULATIVE ORGANIC REPAIR= 189
CUMULATIVE CONTRACT RPAIR= 915

ANNEX VI

0 PERCENT CPL
1,000 HOURS MTBF

MONTH 1

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 311 | 19 | 10 | 0 | 8 | 300 | 1 |
| 2 | 300 | 12 | 14 | 0 | 8 | 296 | 1 |
| 3 | 296 | 5 | 9 | 0 | 10 | 301 | 1 |
| 4 | 301 | 11 | 11 | 0 | 9 | 299 | 1 |
| 5 | 299 | 4 | 3 | 0 | 12 | 307 | 1 |
| 6 | 307 | 5 | 0 | 0 | 9 | 311 | 0 |
| 7 | 311 | 6 | 6 | 0 | 0 | 305 | 0 |
| 8 | 305 | 10 | 5 | 0 | 10 | 305 | 1 |
| 9 | 305 | 10 | 4 | 0 | 11 | 306 | 1 |
| 10 | 306 | 11 | 4 | 0 | 11 | 306 | 1 |
| 11 | 306 | 13 | 7 | 0 | 10 | 303 | 1 |
| 12 | 303 | 9 | 5 | 0 | 11 | 305 | 1 |
| 13 | 305 | 6 | 0 | 0 | 11 | 310 | 1 |
| 14 | 310 | 12 | 12 | 0 | 0 | 298 | 1 |
| 15 | 298 | 3 | 2 | 0 | 13 | 308 | 1 |
| 16 | 308 | 4 | 0 | 0 | 7 | 311 | 0 |
| 17 | 311 | 8 | 0 | 0 | 8 | 311 | 0 |
| 18 | 311 | 9 | 0 | 0 | 9 | 311 | 0 |
| 19 | 311 | 10 | 0 | 0 | 10 | 311 | 0 |
| 20 | 311 | 11 | 0 | 0 | 11 | 311 | 0 |
| 21 | 311 | 15 | 15 | 0 | 0 | 296 | 0 |
| 22 | 296 | 12 | 13 | 0 | 13 | 297 | 1 |
| 23 | 297 | 2 | 2 | 0 | 13 | 308 | 1 |
| 24 | 308 | 10 | 0 | 0 | 12 | 310 | 1 |
| 25 | 310 | 7 | 0 | 0 | 8 | 311 | 0 |
| 26 | 311 | 9 | 0 | 0 | 9 | 311 | 0 |
| 27 | 311 | 8 | 0 | 0 | 8 | 311 | 0 |
| 28 | 311 | 8 | 8 | 0 | 0 | 303 | 0 |
| 29 | 303 | 9 | 3 | 0 | 13 | 307 | 1 |
| 30 | 307 | 10 | 0 | 0 | 13 | 310 | 1 |

CUMULATIVE DEMAND= 268

CUMULATIVE ORGANIC REPAIR= 267

CUMULATIVE CONTRACT RPAIR= 0

MONTH 2

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 310 | 9 | 0 | 0 | 10 | 311 | 0 |
| 2 | 311 | 12 | 0 | 0 | 12 | 311 | 0 |
| 3 | 311 | 15 | 0 | 0 | 14 | 310 | 1 |
| 4 | 310 | 12 | 0 | 0 | 13 | 311 | 0 |
| 5 | 311 | 13 | 13 | 0 | 0 | 298 | 0 |
| 6 | 298 | 8 | 6 | 0 | 14 | 304 | 1 |
| 7 | 304 | 11 | 2 | 0 | 15 | 308 | 1 |
| 8 | 308 | 9 | 0 | 0 | 12 | 311 | 0 |
| 9 | 311 | 7 | 0 | 0 | 7 | 311 | 0 |
| 10 | 311 | 7 | 0 | 0 | 7 | 311 | 0 |
| 11 | 311 | 12 | 0 | 0 | 12 | 311 | 0 |
| 12 | 311 | 11 | 11 | 0 | 0 | 300 | 0 |
| 13 | 300 | 13 | 9 | 0 | 14 | 301 | 1 |
| 14 | 301 | 12 | 6 | 0 | 15 | 304 | 1 |
| 15 | 304 | 11 | 1 | 0 | 16 | 309 | 1 |
| 16 | 309 | 6 | 0 | 0 | 8 | 311 | 0 |
| 17 | 311 | 10 | 0 | 0 | 10 | 311 | 0 |
| 18 | 311 | 8 | 0 | 0 | 8 | 311 | 0 |
| 19 | 311 | 7 | 7 | 0 | 0 | 304 | 0 |
| 20 | 304 | 13 | 2 | 0 | 17 | 308 | 1 |
| 21 | 308 | 10 | 0 | 0 | 13 | 311 | 0 |
| 22 | 311 | 6 | 0 | 0 | 6 | 311 | 0 |
| 23 | 311 | 10 | 0 | 0 | 10 | 311 | 0 |
| 24 | 311 | 3 | 0 | 0 | 3 | 311 | 0 |
| 25 | 311 | 6 | 0 | 0 | 6 | 311 | 0 |
| 26 | 311 | 12 | 12 | 0 | 0 | 299 | 0 |
| 27 | 299 | 16 | 11 | 0 | 16 | 299 | 1 |
| 28 | 299 | 10 | 4 | 0 | 17 | 306 | 1 |
| 29 | 306 | 13 | 1 | 0 | 16 | 309 | 1 |
| 30 | 309 | 13 | 0 | 0 | 15 | 311 | 0 |

CUMULATIVE DEMAND= 573
CUMULATIVE ORGANIC REPAIR= 573
CUMULATIVE CONTRACT RPAIR= 0

MONTH 3

| | BEGINNING | | | ITEMS REPAIRED | | ENDING | IN |
|---|---|---|---|---|---|---|---|
| DAY | STOCK | DEMAND | REPARABLES | CONTRACT | ORGANIC | STOCK | WORK |
| 1 | 311 | 13 | 0 | 0 | 13 | 311 | 0 |
| 2 | 311 | 9 | 0 | 0 | 9 | 311 | 0 |
| 3 | 311 | 7 | 7 | 0 | 0 | 304 | 0 |
| 4 | 304 | 7 | 0 | 0 | 14 | 311 | 0 |
| 5 | 311 | 6 | 0 | 0 | 6 | 311 | 0 |
| 6 | 311 | 10 | 0 | 0 | 10 | 311 | 0 |
| 7 | 311 | 12 | 0 | 0 | 12 | 311 | 0 |
| 8 | 311 | 5 | 0 | 0 | 5 | 311 | 0 |
| 9 | 311 | 6 | 0 | 0 | 6 | 311 | 0 |
| 10 | 311 | 12 | 12 | 0 | 0 | 299 | 0 |
| 11 | 299 | 8 | 3 | 0 | 16 | 307 | 1 |
| 12 | 307 | 16 | 3 | 0 | 16 | 307 | 1 |
| 13 | 307 | 7 | 0 | 0 | 11 | 311 | 0 |
| 14 | 311 | 7 | 0 | 0 | 7 | 311 | 0 |
| 15 | 311 | 12 | 0 | 0 | 12 | 311 | 0 |
| 16 | 311 | 15 | 0 | 0 | 15 | 311 | 0 |
| 17 | 311 | 6 | 6 | 0 | 0 | 305 | 0 |
| 18 | 305 | 9 | 0 | 0 | 15 | 311 | 0 |
| 19 | 311 | 6 | 0 | 0 | 6 | 311 | 0 |
| 20 | 311 | 7 | 0 | 0 | 7 | 311 | 0 |
| 21 | 311 | 11 | 0 | 0 | 11 | 311 | 0 |
| 22 | 311 | 6 | 0 | 0 | 6 | 311 | 0 |
| 23 | 311 | 8 | 0 | 0 | 8 | 311 | 0 |
| 24 | 311 | 10 | 10 | 0 | 0 | 301 | 0 |
| 25 | 301 | 16 | 7 | 0 | 18 | 303 | 1 |
| 26 | 303 | 6 | 0 | 0 | 14 | 311 | 0 |
| 27 | 311 | 5 | 0 | 0 | 5 | 311 | 0 |
| 28 | 311 | 8 | 0 | 0 | 8 | 311 | 0 |
| 29 | 311 | 10 | 0 | 0 | 10 | 311 | 0 |
| 30 | 311 | 8 | 0 | 0 | 8 | 311 | 0 |

CUMULATIVE DEMAND= 841

CUMULATIVE ORGANIC REPAIR= 841

CUMULATIVE CONTRACT RPAIR= 0

ANNEX VII

100 PERCENT CPL
750 HOURS MTBF

MONTH 1

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 391 | 11 | 3 | 7 | 0 | 387 | 1 |
| 2 | 387 | 12 | 8 | 8 | 0 | 383 | 0 |
| 3 | 383 | 17 | 17 | 7 | 0 | 373 | 1 |
| 4 | 373 | 16 | 26 | 8 | 0 | 365 | 0 |
| 5 | 365 | 14 | 32 | 7 | 0 | 358 | 1 |
| 6 | 358 | 8 | 40 | 0 | 0 | 350 | 1 |
| 7 | 350 | 9 | 49 | 0 | 0 | 341 | 1 |
| 8 | 341 | 11 | 53 | 8 | 0 | 338 | 0 |
| 9 | 338 | 8 | 53 | 7 | 0 | 337 | 1 |
| 10 | 337 | 13 | 59 | 8 | 0 | 332 | 0 |
| 11 | 332 | 16 | 67 | 7 | 0 | 323 | 1 |
| 12 | 323 | 12 | 72 | 8 | 0 | 319 | 0 |
| 13 | 319 | 14 | 85 | 0 | 0 | 305 | 1 |
| 14 | 305 | 15 | 100 | 0 | 0 | 290 | 1 |
| 15 | 290 | 10 | 103 | 7 | 0 | 287 | 1 |
| 16 | 287 | 11 | 107 | 8 | 0 | 284 | 0 |
| 17 | 284 | 14 | 113 | 7 | 0 | 277 | 1 |
| 18 | 277 | 16 | 122 | 8 | 0 | 269 | 0 |
| 19 | 269 | 14 | 128 | 7 | 0 | 262 | 1 |
| 20 | 262 | 8 | 136 | 0 | 0 | 254 | 1 |
| 21 | 254 | 12 | 148 | 0 | 0 | 242 | 1 |
| 22 | 242 | 13 | 154 | 8 | 0 | 237 | 0 |
| 23 | 237 | 14 | 160 | 7 | 0 | 230 | 1 |
| 24 | 230 | 17 | 170 | 8 | 0 | 221 | 0 |
| 25 | 221 | 12 | 174 | 7 | 0 | 216 | 1 |
| 26 | 216 | 13 | 180 | 8 | 0 | 211 | 0 |
| 27 | 211 | 12 | 191 | 0 | 0 | 199 | 1 |
| 28 | 199 | 12 | 203 | 0 | 0 | 187 | 1 |
| 29 | 187 | 8 | 204 | 7 | 0 | 186 | 1 |
| 30 | 186 | 16 | 213 | 8 | 0 | 178 | 0 |

CUMULATIVE DEMAND= 378
CUMULATIVE ORGANIC REPAIR= 0
CUMULATIVE CONTRACT RPAIR= 165

MONTH 2

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 178 | 13 | 218 | 7 | 0 | 172 | 1 |
| 2 | 172 | 11 | 222 | 8 | 0 | 169 | 0 |
| 3 | 169 | 10 | 224 | 7 | 0 | 166 | 1 |
| 4 | 166 | 6 | 230 | 0 | 0 | 160 | 1 |
| 5 | 160 | 20 | 250 | 0 | 0 | 140 | 1 |
| 6 | 140 | 10 | 253 | 8 | 0 | 138 | 0 |
| 7 | 138 | 18 | 263 | 7 | 0 | 127 | 1 |
| 8 | 127 | 12 | 268 | 8 | 0 | 123 | 0 |
| 9 | 123 | 15 | 275 | 7 | 0 | 115 | 1 |
| 10 | 115 | 15 | 283 | 8 | 0 | 108 | 0 |
| 11 | 108 | 18 | 300 | 0 | 0 | 90 | 1 |
| 12 | 90 | 18 | 318 | 0 | 0 | 72 | 1 |
| 13 | 72 | 12 | 323 | 7 | 0 | 67 | 1 |
| 14 | 67 | 14 | 330 | 8 | 0 | 61 | 0 |
| 15 | 61 | 13 | 335 | 7 | 0 | 55 | 1 |
| 16 | 55 | 10 | 338 | 8 | 0 | 53 | 0 |
| 17 | 53 | 11 | 341 | 7 | 0 | 49 | 1 |
| 18 | 49 | 10 | 351 | 0 | 0 | 39 | 1 |
| 19 | 39 | 6 | 357 | 0 | 0 | 33 | 1 |
| 20 | 33 | 8 | 358 | 8 | 0 | 33 | 0 |
| 21 | 33 | 13 | 363 | 7 | 0 | 27 | 1 |
| 22 | 27 | 12 | 368 | 8 | 0 | 23 | 0 |
| 23 | 23 | 8 | 368 | 7 | 0 | 22 | 1 |
| 24 | 22 | 11 | 372 | 8 | 0 | 19 | 0 |
| 25 | 19 | 17 | 388 | 0 | 0 | 2 | 1 |
| 26 | 2 | 11 | 399 | 0 | 0 | -9 | 1 |
| 27 | -9 | 6 | 398 | 7 | 0 | -8 | 1 |
| 28 | -8 | 10 | 401 | 8 | 0 | -10 | 0 |
| 29 | -10 | 18 | 411 | 7 | 0 | -21 | 1 |
| 30 | -21 | 11 | 415 | 8 | 0 | -24 | 0 |

CUMULATIVE DEMAND= 745
CUMULATIVE ORGANIC REPAIR= 0
CUMULATIVE CONTRACT RPAIR= 330

MONTH 3

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | -24 | 17 | 424 | 7 | 0 | -34 | 1 |
| 2 | -34 | 16 | 440 | 0 | 0 | -50 | 1 |
| 3 | -50 | 11 | 451 | 0 | 0 | -61 | 1 |
| 4 | -61 | 18 | 462 | 8 | 0 | -71 | 0 |
| 5 | -71 | 13 | 467 | 7 | 0 | -77 | 1 |
| 6 | -77 | 13 | 473 | 8 | 0 | -82 | 0 |
| 7 | -82 | 9 | 474 | 7 | 0 | -84 | 1 |
| 8 | -84 | 9 | 476 | 8 | 0 | -85 | 0 |
| 9 | -85 | 13 | 488 | 0 | 0 | -98 | 1 |
| 10 | -98 | 16 | 504 | 0 | 0 | -114 | 1 |
| 11 | -114 | 15 | 512 | 7 | 0 | -122 | 1 |
| 12 | -122 | 15 | 520 | 8 | 0 | -129 | 0 |
| 13 | -129 | 10 | 522 | 7 | 0 | -132 | 1 |
| 14 | -132 | 10 | 525 | 8 | 0 | -134 | 0 |
| 15 | -134 | 11 | 528 | 7 | 0 | -138 | 1 |
| 16 | -138 | 13 | 541 | 0 | 0 | -151 | 1 |
| 17 | -151 | 11 | 552 | 0 | 0 | -162 | 1 |
| 18 | -162 | 10 | 555 | 8 | 0 | -164 | 0 |
| 19 | -164 | 9 | 556 | 7 | 0 | -166 | 1 |
| 20 | -166 | 10 | 559 | 8 | 0 | -168 | 0 |
| 21 | -168 | 10 | 561 | 7 | 0 | -171 | 1 |
| 22 | -171 | 11 | 565 | 8 | 0 | -174 | 0 |
| 23 | -174 | 12 | 576 | 0 | 0 | -186 | 1 |
| 24 | -186 | 9 | 585 | 0 | 0 | -195 | 1 |
| 25 | -195 | 8 | 586 | 7 | 0 | -196 | 1 |
| 26 | -196 | 8 | 587 | 8 | 0 | -196 | 0 |
| 27 | -196 | 13 | 592 | 7 | 0 | -202 | 1 |
| 28 | -202 | 13 | 598 | 8 | 0 | -207 | 0 |
| 29 | -207 | 16 | 606 | 7 | 0 | -216 | 1 |
| 30 | -216 | 12 | 618 | 0 | 0 | -228 | 1 |

CUMULATIVE DEMAND= 1106
CUMULATIVE ORGANIC REPAIR= 0
CUMULATIVE CONTRACT RPAIR= 487

MONTH 11

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | -143 | 10 | 542 | 0 | 0 | -153 | 2 |
| 2 | -153 | 12 | 538 | 8 | 9 | -148 | 1 |
| 3 | -148 | 14 | 534 | 7 | 10 | -145 | 2 |
| 4 | -145 | 16 | 534 | 8 | 9 | -144 | 1 |
| 5 | -144 | 10 | 527 | 7 | 9 | -138 | 2 |
| 6 | -138 | 15 | 526 | 8 | 9 | -136 | 1 |
| 7 | -136 | 8 | 523 | 0 | 10 | -134 | 2 |
| 8 | -134 | 10 | 533 | 0 | 0 | -144 | 2 |
| 9 | -144 | 9 | 525 | 7 | 10 | -136 | 2 |
| 10 | -136 | 12 | 521 | 8 | 9 | -131 | 1 |
| 11 | -131 | 16 | 520 | 7 | 9 | -131 | 2 |
| 12 | -131 | 7 | 509 | 8 | 11 | -119 | 1 |
| 13 | -119 | 8 | 500 | 7 | 9 | -111 | 2 |
| 14 | -111 | 10 | 501 | 0 | 9 | -112 | 2 |
| 15 | -112 | 12 | 513 | 0 | 0 | -124 | 2 |
| 16 | -124 | 9 | 506 | 8 | 9 | -116 | 1 |
| 17 | -116 | 10 | 497 | 7 | 11 | -108 | 2 |
| 18 | -108 | 15 | 495 | 8 | 10 | -105 | 1 |
| 19 | -105 | 13 | 491 | 7 | 9 | -102 | 2 |
| 20 | -102 | 10 | 486 | 8 | 8 | -96 | 1 |
| 21 | -96 | 11 | 486 | 0 | 10 | -97 | 2 |
| 22 | -97 | 13 | 499 | 0 | 0 | -110 | 2 |
| 23 | -110 | 12 | 494 | 7 | 10 | -105 | 2 |
| 24 | -105 | 7 | 484 | 8 | 10 | -94 | 1 |
| 25 | -94 | 4 | 470 | 7 | 10 | -81 | 2 |
| 26 | -81 | 9 | 462 | 8 | 10 | -72 | 1 |
| 27 | -72 | 12 | 456 | 7 | 10 | -67 | 2 |
| 28 | -67 | 9 | 454 | 0 | 11 | -65 | 2 |
| 29 | -65 | 13 | 467 | 0 | 0 | -78 | 2 |
| 30 | -78 | 10 | 460 | 8 | 10 | -70 | 1 |

CUMULATIVE DEMAND= 3876

CUMULATIVE ORGANIC REPAIR= 1645

CUMULATIVE CONTRACT RPAIR= 1770

MONTH 12

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | -70 | 12 | 454 | 7 | 10 | -65 | 2 |
| 2 | -65 | 7 | 444 | 8 | 10 | -54 | 1 |
| 3 | -54 | 16 | 442 | 7 | 10 | -53 | 2 |
| 4 | -53 | 9 | 434 | 8 | 10 | -44 | 1 |
| 5 | -44 | 8 | 432 | 0 | 9 | -43 | 2 |
| 6 | -43 | 16 | 448 | 0 | 0 | -59 | 2 |
| 7 | -59 | 17 | 448 | 7 | 10 | -59 | 2 |
| 8 | -59 | 10 | 441 | 8 | 10 | -51 | 1 |
| 9 | -51 | 15 | 438 | 7 | 10 | -49 | 2 |
| 10 | -49 | 15 | 436 | 8 | 10 | -46 | 1 |
| 11 | -46 | 8 | 425 | 7 | 11 | -36 | 2 |
| 12 | -36 | 6 | 421 | 0 | 10 | -32 | 2 |
| 13 | -32 | 4 | 425 | 0 | 0 | -36 | 2 |
| 14 | -36 | 9 | 417 | 8 | 10 | -27 | 1 |
| 15 | -27 | 9 | 409 | 7 | 9 | -20 | 2 |
| 16 | -20 | 6 | 398 | 8 | 10 | -8 | 1 |
| 17 | -8 | 15 | 395 | 7 | 10 | -6 | 2 |
| 18 | -6 | 12 | 389 | 8 | 11 | 1 | 1 |
| 19 | 1 | 9 | 388 | 0 | 9 | 1 | 2 |
| 20 | 1 | 12 | 400 | 0 | 0 | -11 | 2 |
| 21 | -11 | 14 | 397 | 7 | 10 | -8 | 2 |
| 22 | -8 | 14 | 394 | 8 | 10 | -4 | 1 |
| 23 | -4 | 16 | 392 | 7 | 10 | -3 | 2 |
| 24 | -3 | 10 | 385 | 8 | 10 | 5 | 1 |
| 25 | 5 | 7 | 374 | 7 | 10 | 15 | 2 |
| 26 | 15 | 11 | 375 | 0 | 10 | 14 | 2 |
| 27 | 14 | 17 | 392 | 0 | 0 | -3 | 2 |
| 28 | -3 | 3 | 378 | 8 | 10 | 12 | 1 |
| 29 | 12 | 6 | 367 | 7 | 9 | 22 | 2 |
| 30 | 22 | 10 | 359 | 8 | 11 | 31 | 1 |

CUMULATIVE DEMAND= 4199
CUMULATIVE ORGANIC REPAIR= 1904
CUMULATIVE CONTRACT RPAIR= 1935

ANNEX VIII

150 PERCENT CPL
750 HOURS MTBF

MONTH 1

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 391 | 9 | 0 | 9 | 0 | 391 | 0 |
| 2 | 391 | 12 | 0 | 11 | 0 | 390 | 1 |
| 3 | 390 | 13 | 2 | 12 | 0 | 389 | 0 |
| 4 | 389 | 14 | 4 | 11 | 0 | 386 | 1 |
| 5 | 386 | 12 | 5 | 12 | 0 | 386 | 0 |
| 6 | 386 | 15 | 19 | 0 | 0 | 371 | 1 |
| 7 | 371 | 15 | 34 | 0 | 0 | 356 | 1 |
| 8 | 356 | 17 | 40 | 11 | 0 | 350 | 1 |
| 9 | 350 | 15 | 44 | 12 | 0 | 347 | 0 |
| 10 | 347 | 15 | 47 | 11 | 0 | 343 | 1 |
| 11 | 343 | 12 | 48 | 12 | 0 | 343 | 0 |
| 12 | 343 | 16 | 52 | 11 | 0 | 338 | 1 |
| 13 | 338 | 15 | 67 | 0 | 0 | 323 | 1 |
| 14 | 323 | 19 | 86 | 0 | 0 | 304 | 1 |
| 15 | 304 | 11 | 86 | 12 | 0 | 305 | 0 |
| 16 | 305 | 14 | 88 | 11 | 0 | 302 | 1 |
| 17 | 302 | 19 | 96 | 12 | 0 | 295 | 0 |
| 18 | 295 | 14 | 98 | 11 | 0 | 292 | 1 |
| 19 | 292 | 12 | 99 | 12 | 0 | 292 | 0 |
| 20 | 292 | 10 | 108 | 0 | 0 | 282 | 1 |
| 21 | 282 | 12 | 120 | 0 | 0 | 270 | 1 |
| 22 | 270 | 5 | 114 | 11 | 0 | 276 | 1 |
| 23 | 276 | 13 | 116 | 12 | 0 | 275 | 0 |
| 24 | 275 | 12 | 116 | 11 | 0 | 274 | 1 |
| 25 | 274 | 13 | 118 | 12 | 0 | 273 | 0 |
| 26 | 273 | 12 | 118 | 11 | 0 | 272 | 1 |
| 27 | 272 | 10 | 128 | 0 | 0 | 262 | 1 |
| 28 | 262 | 7 | 135 | 0 | 0 | 255 | 1 |
| 29 | 255 | 15 | 139 | 12 | 0 | 252 | 0 |
| 30 | 252 | 10 | 137 | 11 | 0 | 253 | 1 |

CUMULATIVE DEMAND= 388
CUMULATIVE ORGANIC REPAIR= 0
CUMULATIVE CONTRACT RPAIR= 250

MONTH 3

| | BEGINNING | | | ITEMS REPAIRED | | ENDI?G | IN |
|---|---|---|---|---|---|---|---|
| DAY | STOCK | DEMAND | REPARABLES | CONTRACT | ORGANIC | STOCK | WORK |
| 1 | 65 | 14 | 328 | 12 | 0 | 63 | 0 |
| 2 | 63 | 14 | 341 | 0 | 0 | 49 | 1 |
| 3 | 49 | 16 | 357 | 0 | 0 | 33 | 1 |
| 4 | 33 | 11 | 357 | 11 | 0 | 33 | 1 |
| 5 | 33 | 15 | 361 | 12 | 0 | 30 | 0 |
| 6 | 30 | 9 | 358 | 11 | 0 | 32 | 1 |
| 7 | 32 | 9 | 356 | 12 | 0 | 35 | 0 |
| 8 | 35 | 16 | 360 | 11 | 0 | 30 | 1 |
| 9 | 30 | 9 | 369 | 0 | 0 | 21 | 1 |
| 10 | 21 | 17 | 386 | 0 | 0 | 4 | 1 |
| 11 | 4 | 22 | 397 | 12 | 0 | -6 | 0 |
| 12 | -6 | 10 | 395 | 11 | 0 | -5 | 1 |
| 13 | -5 | 20 | 404 | 12 | 0 | -13 | 0 |
| 14 | -13 | 15 | 407 | 11 | 0 | -17 | 1 |
| 15 | -17 | 8 | 404 | 12 | 0 | -13 | 0 |
| 16 | -13 | 15 | 418 | 0 | 0 | -28 | 1 |
| 17 | -28 | 12 | 430 | 0 | 0 | -40 | 1 |
| 18 | -40 | 12 | 431 | 11 | 0 | -41 | 1 |
| 19 | -41 | 11 | 431 | 12 | 0 | -40 | 0 |
| 20 | -40 | 17 | 436 | 11 | 0 | -46 | 1 |
| 21 | -46 | 16 | 441 | 12 | 0 | -50 | 0 |
| 22 | -50 | 18 | 447 | 11 | 0 | -57 | 1 |
| 23 | -57 | 13 | 460 | 0 | 0 | -70 | 1 |
| 24 | -70 | 23 | 483 | 0 | 0 | -93 | 1 |
| 25 | -93 | 16 | 488 | 12 | 0 | -97 | 0 |
| 26 | -97 | 13 | 489 | 11 | 0 | -99 | 1 |
| 27 | -99 | 12 | 490 | 12 | 0 | -99 | 0 |
| 28 | -99 | 13 | 491 | 11 | 0 | -101 | 1 |
| 29 | -101 | 20 | 500 | 12 | 0 | -109 | 0 |
| 30 | -109 | 5 | 504 | 0 | 0 | -114 | 1 |

CUMULATIVE DEMAND= 1250
CUMULATIVE ORGANIC REPAIR= 0
CUMULATIVE CONTRACT RPAIR= 745

MONTH 5

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | -160 | 13 | 547 | 12 | 4 | -157 | 1 |
| 2 | -157 | 16 | 547 | 11 | 4 | -158 | 2 |
| 3 | -158 | 14 | 547 | 12 | 3 | -157 | 1 |
| 4 | -157 | 14 | 545 | 11 | 4 | -156 | 2 |
| 5 | -156 | 7 | 548 | 0 | 4 | -159 | 2 |
| 6 | -159 | 10 | 558 | 0 | 0 | -169 | 2 |
| 7 | -169 | 4 | 547 | 12 | 4 | -157 | 1 |
| 8 | -157 | 10 | 541 | 11 | 4 | -152 | 2 |
| 9 | -152 | 14 | 540 | 12 | 4 | -150 | 1 |
| 10 | -150 | 14 | 537 | 11 | 5 | -148 | 2 |
| 11 | -148 | 11 | 533 | 12 | 4 | -143 | 1 |
| 12 | -143 | 12 | 540 | 0 | 4 | -151 | 2 |
| 13 | -151 | 15 | 555 | 0 | 0 | -166 | 2 |
| 14 | -166 | 28 | 568 | 11 | 4 | -179 | 2 |
| 15 | -179 | 10 | 562 | 12 | 5 | -172 | 1 |
| 16 | -172 | 9 | 555 | 11 | 4 | -166 | 2 |
| 17 | -166 | 7 | 547 | 12 | 4 | -157 | 1 |
| 18 | -157 | 16 | 546 | 11 | 5 | -157 | 2 |
| 19 | -157 | 17 | 559 | 0 | 4 | -170 | 2 |
| 20 | -170 | 12 | 571 | 0 | 0 | -182 | 2 |
| 21 | -182 | 11 | 567 | 12 | 4 | -177 | 1 |
| 22 | -177 | 7 | 558 | 11 | 4 | -169 | 2 |
| 23 | -169 | 9 | 551 | 12 | 5 | -161 | 1 |
| 24 | -161 | 17 | 551 | 11 | 5 | -162 | 2 |
| 25 | -162 | 11 | 547 | 12 | 4 | -157 | 1 |
| 26 | -157 | 14 | 556 | 0 | 4 | -167 | 2 |
| 27 | -167 | 11 | 567 | 0 | 0 | -178 | 2 |
| 28 | -178 | 11 | 563 | 11 | 4 | -174 | 2 |
| 29 | -174 | 21 | 568 | 12 | 5 | -178 | 1 |
| 30 | -178 | 13 | 565 | 11 | 4 | -176 | 2 |

CUMULATIVE DEMAND= 1997
CUMULATIVE ORGANIC REPAIR= 191
CUMULATIVE CONTRACT RPAIR= 1239

MONTH 10

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | -25 | 13 | 410 | 12 | 6 | -20 | 1 |
| 2 | -20 | 13 | 416 | 0 | 6 | -27 | 2 |
| 3 | -27 | 9 | 425 | 0 | 0 | -36 | 2 |
| 4 | -36 | 7 | 415 | 11 | 6 | -26 | 2 |
| 5 | -26 | 8 | 407 | 12 | 5 | -17 | 1 |
| 6 | -17 | 9 | 398 | 11 | 6 | -9 | 2 |
| 7 | -9 | 10 | 391 | 12 | 6 | -1 | 1 |
| 8 | -1 | 9 | 383 | 11 | 5 | 6 | 2 |
| 9 | 6 | 9 | 386 | 0 | 6 | 3 | 2 |
| 10 | 3 | 11 | 397 | 0 | 0 | -8 | 2 |
| 11 | -8 | 10 | 391 | 12 | 5 | -1 | 1 |
| 12 | -1 | 12 | 385 | 11 | 6 | 4 | 2 |
| 13 | 4 | 7 | 376 | 12 | 5 | 14 | 1 |
| 14 | 14 | 11 | 369 | 11 | 6 | 20 | 2 |
| 15 | 20 | 16 | 368 | 12 | 6 | 22 | 1 |
| 16 | 22 | 10 | 371 | 0 | 6 | 18 | 2 |
| 17 | 18 | 15 | 386 | 0 | 0 | 3 | 2 |
| 18 | 3 | 8 | 377 | 11 | 6 | 12 | 2 |
| 19 | 12 | 16 | 377 | 12 | 5 | 13 | 1 |
| 20 | 13 | 5 | 365 | 11 | 5 | 24 | 2 |
| 21 | 24 | 12 | 360 | 12 | 6 | 30 | 1 |
| 22 | 30 | 9 | 351 | 11 | 6 | 38 | 2 |
| 23 | 38 | 11 | 356 | 0 | 6 | 33 | 2 |
| 24 | 33 | 16 | 372 | 0 | 0 | 17 | 2 |
| 25 | 17 | 12 | 367 | 12 | 6 | 23 | 1 |
| 26 | 23 | 7 | 356 | 11 | 6 | 33 | 2 |
| 27 | 33 | 9 | 348 | 12 | 6 | 42 | 1 |
| 28 | 42 | 16 | 346 | 11 | 6 | 43 | 2 |
| 29 | 43 | 15 | 344 | 12 | 6 | 46 | 1 |
| 30 | 46 | 9 | 346 | 0 | 6 | 43 | 2 |

CUMULATIVE DEMAND= 3690
CUMULATIVE ORGANIC REPAIR= 872
CUMULATIVE CONTRACT RPAIR= 2470

ANNEX IX

0 PERCENT CPL
750 HOURS MTBF

MONTH 1

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 391 | 11 | 3 | 0 | 7 | 387 | 1 |
| 2 | 387 | 13 | 7 | 0 | 9 | 383 | 1 |
| 3 | 383 | 8 | 7 | 0 | 8 | 383 | 1 |
| 4 | 383 | 18 | 15 | 0 | 10 | 375 | 1 |
| 5 | 375 | 22 | 27 | 0 | 10 | 363 | 1 |
| 6 | 363 | 12 | 27 | 0 | 12 | 363 | 1 |
| 7 | 363 | 15 | 42 | 0 | 0 | 348 | 1 |
| 8 | 348 | 16 | 47 | 0 | 11 | 343 | 1 |
| 9 | 343 | 13 | 50 | 0 | 10 | 340 | 1 |
| 10 | 340 | 13 | 53 | 0 | 10 | 337 | 1 |
| 11 | 337 | 8 | 49 | 0 | 12 | 341 | 1 |
| 12 | 341 | 12 | 49 | 0 | 12 | 341 | 1 |
| 13 | 341 | 18 | 56 | 0 | 11 | 334 | 1 |
| 14 | 334 | 8 | 64 | 0 | 0 | 326 | 1 |
| 15 | 326 | 12 | 64 | 0 | 12 | 326 | 1 |
| 16 | 326 | 14 | 64 | 0 | 14 | 326 | 1 |
| 17 | 326 | 16 | 68 | 0 | 12 | 322 | 1 |
| 18 | 322 | 9 | 65 | 0 | 12 | 325 | 1 |
| 19 | 325 | 11 | 63 | 0 | 13 | 327 | 1 |
| 20 | 327 | 19 | 69 | 0 | 13 | 321 | 1 |
| 21 | 321 | 13 | 82 | 0 | 0 | 308 | 1 |
| 22 | 308 | 19 | 86 | 0 | 15 | 304 | 1 |
| 23 | 304 | 11 | 83 | 0 | 14 | 307 | 1 |
| 24 | 307 | 12 | 82 | 0 | 13 | 308 | 1 |
| 25 | 308 | 17 | 85 | 0 | 14 | 305 | 1 |
| 26 | 305 | 15 | 85 | 0 | 15 | 305 | 1 |
| 27 | 305 | 7 | 79 | 0 | 13 | 311 | 1 |
| 28 | 311 | 12 | 91 | 0 | 0 | 299 | 1 |
| 29 | 299 | 16 | 92 | 0 | 15 | 298 | 1 |
| 30 | 298 | 15 | 94 | 0 | 13 | 296 | 1 |

CUMULATIVE DEMAND= 405
CUMULATIVE ORGANIC REPAIR= 310
CUMULATIVE CONTRACT RPAIR= 0

MONTH 2

| | BEGINNING | | | ITEMS REPAIRED | | ENDING | IN |
|---|---|---|---|---|---|---|---|
| DAY | STOCK | DEMAND | REPARABLES | CONTRACT | ORGANIC | STOCK | WORK |
| 1 | 296 | 13 | 93 | 0 | 14 | 297 | 1 |
| 2 | 297 | 16 | 94 | 0 | 15 | 296 | 1 |
| 3 | 296 | 11 | 91 | 0 | 14 | 299 | 1 |
| 4 | 299 | 17 | 93 | 0 | 15 | 297 | 1 |
| 5 | 297 | 9 | 102 | 0 | 0 | 288 | 1 |
| 6 | 288 | 16 | 104 | 0 | 14 | 286 | 1 |
| 7 | 286 | 11 | 99 | 0 | 16 | 291 | 1 |
| 8 | 291 | 18 | 101 | 0 | 16 | 289 | 1 |
| 9 | 289 | 18 | 104 | 0 | 15 | 286 | 1 |
| 10 | 286 | 15 | 103 | 0 | 16 | 287 | 1 |
| 11 | 287 | 9 | 98 | 0 | 14 | 292 | 1 |
| 12 | 292 | 13 | 111 | 0 | 0 | 279 | 1 |
| 13 | 279 | 15 | 110 | 0 | 16 | 280 | 1 |
| 14 | 280 | 13 | 109 | 0 | 14 | 281 | 1 |
| 15 | 281 | 20 | 113 | 0 | 16 | 277 | 1 |
| 16 | 277 | 11 | 109 | 0 | 15 | 281 | 1 |
| 17 | 281 | 10 | 102 | 0 | 17 | 288 | 1 |
| 18 | 288 | 14 | 100 | 0 | 16 | 290 | 1 |
| 19 | 290 | 17 | 117 | 0 | 0 | 273 | 1 |
| 20 | 273 | 15 | 117 | 0 | 15 | 273 | 1 |
| 21 | 273 | 9 | 111 | 0 | 15 | 279 | 1 |
| 22 | 279 | 20 | 115 | 0 | 16 | 275 | 1 |
| 23 | 275 | 10 | 108 | 0 | 17 | 282 | 1 |
| 24 | 282 | 12 | 104 | 0 | 16 | 286 | 1 |
| 25 | 286 | 13 | 100 | 0 | 17 | 290 | 1 |
| 26 | 290 | 10 | 110 | 0 | 0 | 280 | 1 |
| 27 | 280 | 20 | 113 | 0 | 17 | 277 | 1 |
| 28 | 277 | 15 | 110 | 0 | 18 | 280 | 1 |
| 29 | 280 | 18 | 112 | 0 | 16 | 278 | 1 |
| 30 | 278 | 15 | 111 | 0 | 16 | 279 | 1 |

CUMULATIVE DEMAND= 828

CUMULATIVE ORGANIC REPAIR= 716

CUMULATIVE CONTRACT RPAIR= 0

ANNEX X

100 PERCENT CPL
500 HOURS MTBF

MONTH 1

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 545 | 25 | 13 | 11 | 0 | 531 | 1 |
| 2 | 531 | 23 | 25 | 12 | 0 | 520 | 0 |
| 3 | 520 | 26 | 39 | 11 | 0 | 505 | 1 |
| 4 | 505 | 22 | 50 | 12 | 0 | 495 | 0 |
| 5 | 495 | 17 | 55 | 11 | 0 | 489 | 1 |
| 6 | 489 | 15 | 70 | 0 | 0 | 474 | 1 |
| 7 | 474 | 18 | 88 | 0 | 0 | 456 | 1 |
| 8 | 456 | 20 | 97 | 12 | 0 | 448 | 0 |
| 9 | 448 | 18 | 103 | 11 | 0 | 441 | 1 |
| 10 | 441 | 21 | 113 | 12 | 0 | 432 | 0 |
| 11 | 432 | 18 | 119 | 11 | 0 | 425 | 1 |
| 12 | 425 | 26 | 134 | 12 | 0 | 411 | 0 |
| 13 | 411 | 17 | 150 | 0 | 0 | 394 | 1 |
| 14 | 394 | 19 | 169 | 0 | 0 | 375 | 1 |
| 15 | 375 | 19 | 177 | 11 | 0 | 367 | 1 |
| 16 | 367 | 24 | 190 | 12 | 0 | 355 | 0 |
| 17 | 355 | 17 | 195 | 11 | 0 | 349 | 1 |
| 18 | 349 | 23 | 207 | 12 | 0 | 338 | 0 |
| 19 | 338 | 8 | 203 | 11 | 0 | 341 | 1 |
| 20 | 341 | 22 | 225 | 0 | 0 | 319 | 1 |
| 21 | 319 | 22 | 247 | 0 | 0 | 297 | 1 |
| 22 | 297 | 22 | 258 | 12 | 0 | 287 | 0 |
| 23 | 287 | 19 | 265 | 11 | 0 | 279 | 1 |
| 24 | 279 | 26 | 280 | 12 | 0 | 265 | 0 |
| 25 | 265 | 22 | 290 | 11 | 0 | 254 | 1 |
| 26 | 254 | 15 | 294 | 12 | 0 | 251 | 0 |
| 27 | 251 | 17 | 310 | 0 | 0 | 234 | 1 |
| 28 | 234 | 19 | 329 | 0 | 0 | 215 | 1 |
| 29 | 215 | 14 | 332 | 11 | 0 | 212 | 1 |
| 30 | 212 | 20 | 341 | 12 | 0 | 204 | 0 |

CUMULATIVE DEMAND= 594
CUMULATIVE ORGANIC REPAIR= 0
CUMULATIVE CONTRACT RPAIR= 253

MONTH 2

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 204 | 21 | 350 | 11 | 0 | 194 | 1 |
| 2 | 194 | 20 | 359 | 12 | 0 | 186 | 0 |
| 3 | 186 | 19 | 366 | 11 | 0 | 178 | 1 |
| 4 | 178 | 19 | 385 | 0 | 0 | 159 | 1 |
| 5 | 159 | 21 | 406 | 0 | 0 | 138 | 1 |
| 6 | 138 | 17 | 412 | 12 | 0 | 133 | 0 |
| 7 | 133 | 17 | 417 | 11 | 0 | 127 | 1 |
| 8 | 127 | 26 | 432 | 12 | 0 | 113 | 0 |
| 9 | 113 | 23 | 443 | 11 | 0 | 101 | 1 |
| 10 | 101 | 19 | 451 | 12 | 0 | 94 | 0 |
| 11 | 94 | 26 | 476 | 0 | 0 | 68 | 1 |
| 12 | 68 | 26 | 502 | 0 | 0 | 42 | 1 |
| 13 | 42 | 21 | 512 | 11 | 0 | 32 | 1 |
| 14 | 32 | 15 | 516 | 12 | 0 | 29 | 0 |
| 15 | 29 | 20 | 524 | 11 | 0 | 20 | 1 |
| 16 | 20 | 16 | 529 | 12 | 0 | 16 | 0 |
| 17 | 16 | 17 | 534 | 11 | 0 | 10 | 1 |
| 18 | 10 | 20 | 554 | 0 | 0 | -10 | 1 |
| 19 | -10 | 22 | 576 | 0 | 0 | -32 | 1 |
| 20 | -32 | 16 | 581 | 12 | 0 | -36 | 0 |
| 21 | -36 | 19 | 588 | 11 | 0 | -44 | 1 |
| 22 | -44 | 18 | 595 | 12 | 0 | -50 | 0 |
| 23 | -50 | 20 | 603 | 11 | 0 | -59 | 1 |
| 24 | -59 | 18 | 610 | 12 | 0 | -65 | 0 |
| 25 | -65 | 18 | 627 | 0 | 0 | -83 | 1 |
| 26 | -83 | 11 | 638 | 0 | 0 | -94 | 1 |
| 27 | -94 | 15 | 642 | 11 | 0 | -98 | 1 |
| 28 | -98 | 30 | 661 | 12 | 0 | -116 | 0 |
| 29 | -116 | 28 | 677 | 11 | 0 | -133 | 1 |
| 30 | -133 | 18 | 684 | 12 | 0 | -139 | 0 |

CUMULATIVE DEMAND= 1190
CUMULATIVE ORGANIC REPAIR= 0
CUMULATIVE CONTRACT RPAIR= 506

MONTH 3

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | -139 | 15 | 687 | 11 | 0 | -143 | 1 |
| 2 | -143 | 13 | 700 | 0 | 0 | -156 | 1 |
| 3 | -156 | 21 | 721 | 0 | 0 | -177 | 1 |
| 4 | -177 | 21 | 731 | 12 | 0 | -186 | 0 |
| 5 | -186 | 22 | 741 | 11 | 0 | -197 | 1 |
| 6 | -197 | 20 | 750 | 12 | 0 | -205 | 0 |
| 7 | -205 | 20 | 758 | 11 | 0 | -214 | 1 |
| 8 | -214 | 18 | 765 | 12 | 0 | -220 | 0 |
| 9 | -220 | 19 | 783 | 0 | 0 | -239 | 1 |
| 10 | -239 | 22 | 805 | 0 | 0 | -261 | 1 |
| 11 | -261 | 22 | 816 | 11 | 0 | -272 | 1 |
| 12 | -272 | 14 | 819 | 12 | 0 | -274 | 0 |
| 13 | -274 | 19 | 826 | 11 | 0 | -282 | 1 |
| 14 | -282 | 21 | 836 | 12 | 0 | -291 | 0 |
| 15 | -291 | 14 | 838 | 11 | 0 | -294 | 1 |
| 16 | -294 | 23 | 861 | 0 | 0 | -317 | 1 |
| 17 | -317 | 16 | 877 | 0 | 0 | -333 | 1 |
| 18 | -333 | 23 | 889 | 12 | 0 | -344 | 0 |
| 19 | -344 | 15 | 892 | 11 | 0 | -348 | 1 |
| 20 | -348 | 10 | 891 | 12 | 0 | -346 | 0 |
| 21 | -346 | 14 | 893 | 11 | 0 | -349 | 1 |
| 22 | -349 | 25 | 907 | 12 | 0 | -362 | 0 |
| 23 | -362 | 19 | 925 | 0 | 0 | -381 | 1 |
| 24 | -381 | 17 | 942 | 0 | 0 | -398 | 1 |
| 25 | -398 | 22 | 953 | 11 | 0 | -409 | 1 |
| 26 | -409 | 28 | 970 | 12 | 0 | -425 | 0 |
| 27 | -425 | 20 | 978 | 11 | 0 | -434 | 1 |
| 28 | -434 | 22 | 989 | 12 | 0 | -444 | 0 |
| 29 | -444 | 11 | 988 | 11 | 0 | -444 | 1 |
| 30 | -444 | 29 | 1017 | 0 | 0 | -473 | 1 |

CUMULATIVE DEMAND= 1765
CUMULATIVE ORGANIC REPAIR= 0
CUMULATIVE CONTRACT RPAIR= 747

# ANNEX XI

150 PERCENT CPL
500 HOURS MTBF

MONTH 1

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 545 | 19 | 1 | 17 | 0 | 543 | 1 |
| 2 | 543 | 15 | 0 | 17 | 0 | 545 | 0 |
| 3 | 545 | 16 | 0 | 16 | 0 | 545 | 0 |
| 4 | 545 | 18 | 0 | 17 | 0 | 544 | 1 |
| 5 | 544 | 19 | 2 | 18 | 0 | 543 | 0 |
| 6 | 543 | 19 | 20 | 0 | 0 | 524 | 1 |
| 7 | 524 | 22 | 42 | 0 | 0 | 502 | 1 |
| 8 | 502 | 17 | 42 | 17 | 0 | 502 | 1 |
| 9 | 502 | 19 | 44 | 18 | 0 | 501 | 0 |
| 10 | 501 | 16 | 42 | 17 | 0 | 502 | 1 |
| 11 | 502 | 16 | 41 | 18 | 0 | 504 | 0 |
| 12 | 504 | 17 | 40 | 17 | 0 | 504 | 1 |
| 13 | 504 | 21 | 61 | 0 | 0 | 483 | 1 |
| 14 | 483 | 14 | 75 | 0 | 0 | 469 | 1 |
| 15 | 469 | 25 | 83 | 18 | 0 | 462 | 0 |
| 16 | 462 | 19 | 84 | 17 | 0 | 460 | 1 |
| 17 | 460 | 25 | 92 | 18 | 0 | 453 | 0 |
| 18 | 453 | 18 | 92 | 17 | 0 | 452 | 1 |
| 19 | 452 | 18 | 93 | 18 | 0 | 452 | 0 |
| 20 | 452 | 16 | 108 | 0 | 0 | 436 | 1 |
| 21 | 436 | 11 | 119 | 0 | 0 | 425 | 1 |
| 22 | 425 | 30 | 132 | 17 | 0 | 412 | 1 |
| 23 | 412 | 22 | 137 | 18 | 0 | 408 | 0 |
| 24 | 408 | 28 | 147 | 17 | 0 | 397 | 1 |
| 25 | 397 | 21 | 151 | 18 | 0 | 394 | 0 |
| 26 | 394 | 18 | 151 | 17 | 0 | 393 | 1 |
| 27 | 393 | 23 | 174 | 0 | 0 | 370 | 1 |
| 28 | 370 | 19 | 193 | 0 | 0 | 351 | 1 |
| 29 | 351 | 21 | 197 | 18 | 0 | 348 | 0 |
| 30 | 348 | 19 | 198 | 17 | 0 | 346 | 1 |

CUMULATIVE DEMAND= 581
CUMULATIVE ORGANIC REPAIR= 0
CUMULATIVE CONTRACT RPAIR= 382

MONTH 3

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 157 | 19 | 389 | 18 | 0 | 156 | 0 |
| 2 | 156 | 21 | 409 | 0 | 0 | 135 | 1 |
| 3 | 135 | 19 | 428 | 0 | 0 | 116 | 1 |
| 4 | 116 | 25 | 436 | 17 | 0 | 108 | 1 |
| 5 | 108 | 10 | 429 | 18 | 0 | 116 | 0 |
| 6 | 116 | 16 | 427 | 17 | 0 | 117 | 1 |
| 7 | 117 | 25 | 435 | 18 | 0 | 110 | 0 |
| 8 | 110 | 21 | 438 | 17 | 0 | 106 | 1 |
| 9 | 106 | 17 | 455 | 0 | 0 | 89 | 1 |
| 10 | 89 | 30 | 485 | 0 | 0 | 59 | 1 |
| 11 | 59 | 17 | 485 | 18 | 0 | 60 | 0 |
| 12 | 60 | 17 | 484 | 17 | 0 | 60 | 1 |
| 13 | 60 | 22 | 489 | 18 | 0 | 56 | 0 |
| 14 | 56 | 18 | 489 | 17 | 0 | 55 | 1 |
| 15 | 55 | 17 | 489 | 18 | 0 | 56 | 0 |
| 16 | 56 | 22 | 510 | 0 | 0 | 34 | 1 |
| 17 | 34 | 14 | 524 | 0 | 0 | 20 | 1 |
| 18 | 20 | 21 | 528 | 17 | 0 | 16 | 1 |
| 19 | 16 | 22 | 533 | 18 | 0 | 12 | 0 |
| 20 | 12 | 21 | 536 | 17 | 0 | 8 | 1 |
| 21 | 8 | 8 | 527 | 18 | 0 | 18 | 0 |
| 22 | 18 | 21 | 530 | 17 | 0 | 14 | 1 |
| 23 | 14 | 17 | 547 | 0 | 0 | -3 | 1 |
| 24 | -3 | 20 | 567 | 0 | 0 | -23 | 1 |
| 25 | -23 | 21 | 571 | 18 | 0 | -26 | 0 |
| 26 | -26 | 17 | 570 | 17 | 0 | -26 | 1 |
| 27 | -26 | 19 | 572 | 18 | 0 | -27 | 0 |
| 28 | -27 | 23 | 577 | 17 | 0 | -33 | 1 |
| 29 | -33 | 25 | 585 | 18 | 0 | -40 | 0 |
| 30 | -40 | 22 | 606 | 0 | 0 | -62 | 1 |

CUMULATIVE DEMAND= 1742
CUMULATIVE ORGANIC REPAIR= 0
CUMULATIVE CONTRACT RPAIR= 1135

MONTH 6

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | -189 | 21 | 732 | 18 | 4 | -188 | 1 |
| 2 | -188 | 19 | 728 | 17 | 5 | -185 | 2 |
| 3 | -185 | 16 | 740 | 0 | 4 | -197 | 2 |
| 4 | -197 | 14 | 754 | 0 | 0 | -211 | 2 |
| 5 | -211 | 16 | 747 | 18 | 6 | -203 | 1 |
| 6 | -203 | 17 | 742 | 17 | 4 | -199 | 2 |
| 7 | -199 | 23 | 743 | 18 | 5 | -199 | 1 |
| 8 | -199 | 12 | 732 | 17 | 5 | -189 | 2 |
| 9 | -189 | 17 | 726 | 18 | 6 | -182 | 1 |
| 10 | -182 | 18 | 738 | 0 | 5 | -195 | 2 |
| 11 | -195 | 16 | 754 | 0 | 0 | -211 | 2 |
| 12 | -211 | 15 | 748 | 17 | 4 | -205 | 2 |
| 13 | -205 | 13 | 740 | 18 | 4 | -196 | 1 |
| 14 | -196 | 16 | 734 | 17 | 4 | -191 | 2 |
| 15 | -191 | 18 | 731 | 18 | 4 | -187 | 1 |
| 16 | -187 | 18 | 725 | 17 | 6 | -182 | 2 |
| 17 | -182 | 19 | 740 | 0 | 4 | -197 | 2 |
| 18 | -197 | 16 | 756 | 0 | 0 | -213 | 2 |
| 19 | -213 | 7 | 741 | 18 | 5 | -197 | 1 |
| 20 | -197 | 10 | 728 | 17 | 5 | -185 | 2 |
| 21 | -185 | 20 | 726 | 18 | 5 | -182 | 1 |
| 22 | -182 | 19 | 722 | 17 | 5 | -179 | 2 |
| 23 | -179 | 19 | 718 | 18 | 6 | -174 | 1 |
| 24 | -174 | 12 | 725 | 0 | 4 | -182 | 2 |
| 25 | -182 | 19 | 744 | 0 | 0 | -201 | 2 |
| 26 | -201 | 16 | 738 | 17 | 5 | -195 | 2 |
| 27 | -195 | 18 | 734 | 18 | 5 | -190 | 1 |
| 28 | -190 | 13 | 723 | 17 | 6 | -180 | 2 |
| 29 | -180 | 21 | 723 | 18 | 4 | -179 | 1 |
| 30 | -179 | 18 | 718 | 17 | 5 | -175 | 2 |

CUMULATIVE DEMAND= 3313
CUMULATIVE ORGANIC REPAIR= 321
CUMULATIVE CONTRACT RPAIR= 2272

ANNEX XII

0 PERCENT CPL
500 HOURS MTBF

MONTH 1

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 545 | 17 | 10 | 0 | 6 | 534 | 1 |
| 2 | 534 | 21 | 23 | 0 | 8 | 521 | 1 |
| 3 | 521 | 18 | 32 | 0 | 9 | 512 | 1 |
| 4 | 512 | 7 | 30 | 0 | 9 | 514 | 1 |
| 5 | 514 | 22 | 40 | 0 | 12 | 504 | 1 |
| 6 | 504 | 19 | 50 | 0 | 9 | 494 | 1 |
| 7 | 494 | 15 | 65 | 0 | 0 | 479 | 1 |
| 8 | 479 | 12 | 67 | 0 | 10 | 477 | 1 |
| 9 | 477 | 22 | 78 | 0 | 11 | 466 | 1 |
| 10 | 466 | 14 | 82 | 0 | 10 | 462 | 1 |
| 11 | 462 | 19 | 90 | 0 | 11 | 454 | 1 |
| 12 | 454 | 24 | 102 | 0 | 12 | 442 | 1 |
| 13 | 442 | 18 | 108 | 0 | 12 | 436 | 1 |
| 14 | 436 | 24 | 132 | 0 | 0 | 412 | 1 |
| 15 | 412 | 16 | 136 | 0 | 12 | 408 | 1 |
| 16 | 408 | 17 | 141 | 0 | 12 | 403 | 1 |
| 17 | 403 | 20 | 149 | 0 | 12 | 395 | 1 |
| 18 | 395 | 19 | 154 | 0 | 14 | 390 | 1 |
| 19 | 390 | 19 | 161 | 0 | 12 | 383 | 1 |
| 20 | 383 | 16 | 164 | 0 | 13 | 380 | 1 |
| 21 | 380 | 21 | 185 | 0 | 0 | 359 | 1 |
| 22 | 359 | 20 | 193 | 0 | 12 | 351 | 1 |
| 23 | 351 | 19 | 199 | 0 | 13 | 345 | 1 |
| 24 | 345 | 18 | 203 | 0 | 14 | 341 | 1 |
| 25 | 341 | 24 | 214 | 0 | 13 | 330 | 1 |
| 26 | 330 | 19 | 220 | 0 | 13 | 324 | 1 |
| 27 | 324 | 21 | 227 | 0 | 14 | 317 | 1 |
| 28 | 317 | 19 | 246 | 0 | 0 | 298 | 1 |
| 29 | 298 | 22 | 254 | 0 | 14 | 290 | 1 |
| 30 | 290 | 22 | 262 | 0 | 14 | 282 | 1 |

CUMULATIVE DEMAND= 564

CUMULATIVE ORGANIC REPAIR= 301
CUMULATIVE CONTRACT RPAIR= 0

MONTH 3

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | 113 | 15 | 426 | 0 | 20 | 118 | 1 |
| 2 | 118 | 26 | 437 | 0 | 15 | 107 | 1 |
| 3 | 107 | 13 | 450 | 0 | 0 | 94 | 1 |
| 4 | 94 | 24 | 457 | 0 | 17 | 87 | 1 |
| 5 | 87 | 26 | 465 | 0 | 18 | 79 | 1 |
| 6 | 79 | 15 | 463 | 0 | 17 | 81 | 1 |
| 7 | 81 | 15 | 461 | 0 | 17 | 83 | 1 |
| 8 | 83 | 14 | 459 | 0 | 16 | 85 | 1 |
| 9 | 85 | 23 | 466 | 0 | 16 | 78 | 1 |
| 10 | 78 | 22 | 488 | 0 | 0 | 56 | 1 |
| 11 | 56 | 22 | 493 | 0 | 17 | 51 | 1 |
| 12 | 51 | 25 | 500 | 0 | 18 | 44 | 1 |
| 13 | 44 | 27 | 510 | 0 | 17 | 34 | 1 |
| 14 | 34 | 19 | 511 | 0 | 18 | 33 | 1 |
| 15 | 33 | 22 | 515 | 0 | 18 | 29 | 1 |
| 16 | 29 | 26 | 526 | 0 | 15 | 18 | 1 |
| 17 | 18 | 22 | 548 | 0 | 0 | -4 | 1 |
| 18 | -4 | 24 | 553 | 0 | 19 | -9 | 1 |
| 19 | -9 | 16 | 550 | 0 | 19 | -6 | 1 |
| 20 | -6 | 25 | 557 | 0 | 18 | -13 | 1 |
| 21 | -13 | 21 | 560 | 0 | 18 | -16 | 1 |
| 22 | -16 | 22 | 564 | 0 | 18 | -20 | 1 |
| 23 | -20 | 19 | 566 | 0 | 17 | -22 | 1 |
| 24 | -22 | 18 | 584 | 0 | 0 | -40 | 1 |
| 25 | -40 | 26 | 592 | 0 | 18 | -48 | 1 |
| 26 | -48 | 21 | 594 | 0 | 19 | -50 | 1 |
| 27 | -50 | 19 | 596 | 0 | 17 | -52 | 1 |
| 28 | -52 | 15 | 593 | 0 | 18 | -49 | 1 |
| 29 | -49 | 20 | 594 | 0 | 19 | -50 | 1 |
| 30 | -50 | 21 | 597 | 0 | 18 | -53 | 1 |

CUMULATIVE DEMAND= 1750
CUMULATIVE ORGANIC REPAIR= 1160
CUMULATIVE CONTRACT RPAIR= 0

MONTH 6

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | -92 | 14 | 631 | 0 | 19 | -87 | 1 |
| 2 | -87 | 16 | 628 | 0 | 19 | -84 | 1 |
| 3 | -84 | 15 | 622 | 0 | 21 | -78 | 1 |
| 4 | -78 | 28 | 650 | 0 | 0 | -106 | 1 |
| 5 | -106 | 16 | 645 | 0 | 21 | -101 | 1 |
| 6 | -101 | 24 | 648 | 0 | 21 | -104 | 1 |
| 7 | -104 | 16 | 645 | 0 | 19 | -101 | 1 |
| 8 | -101 | 16 | 640 | 0 | 21 | -96 | 1 |
| 9 | -96 | 21 | 641 | 0 | 20 | -97 | 1 |
| 10 | -97 | 13 | 632 | 0 | 22 | -88 | 1 |
| 11 | -88 | 16 | 648 | 0 | 0 | -104 | 1 |
| 12 | -104 | 23 | 650 | 0 | 21 | -106 | 1 |
| 13 | -106 | 16 | 646 | 0 | 20 | -102 | 1 |
| 14 | -102 | 13 | 640 | 0 | 19 | -96 | 1 |
| 15 | -96 | 12 | 631 | 0 | 21 | -87 | 1 |
| 16 | -87 | 22 | 631 | 0 | 22 | -87 | 1 |
| 17 | -87 | 20 | 631 | 0 | 20 | -87 | 1 |
| 18 | -87 | 24 | 655 | 0 | 0 | -111 | 1 |
| 19 | -111 | 15 | 648 | 0 | 22 | -104 | 1 |
| 20 | -104 | 14 | 640 | 0 | 22 | -96 | 1 |
| 21 | -96 | 15 | 632 | 0 | 23 | -88 | 1 |
| 22 | -88 | 14 | 626 | 0 | 20 | -82 | 1 |
| 23 | -82 | 20 | 625 | 0 | 21 | -81 | 1 |
| 24 | -81 | 21 | 625 | 0 | 21 | -81 | 1 |
| 25 | -81 | 21 | 646 | 0 | 0 | -102 | 1 |
| 26 | -102 | 17 | 644 | 0 | 19 | -100 | 1 |
| 27 | -100 | 19 | 641 | 0 | 22 | -97 | 1 |
| 28 | -97 | 17 | 637 | 0 | 21 | -93 | 1 |
| 29 | -93 | 13 | 626 | 0 | 24 | -82 | 1 |
| 30 | -82 | 19 | 622 | 0 | 23 | -78 | 1 |

CUMULATIVE DEMAND= 3331
CUMULATIVE ORGANIC REPAIR= 2700
CUMULATIVE CONTRACT RPAIR= 0

MONTH 8

| DAY | BEGINNING STOCK | DEMAND | REPARABLES | ITEMS REPAIRED CONTRACT | ITEMS REPAIRED ORGANIC | ENDING STOCK | IN WORK |
|---|---|---|---|---|---|---|---|
| 1 | -54 | 19 | 596 | 0 | 21 | -52 | 1 |
| 2 | -52 | 13 | 586 | 0 | 23 | -42 | 1 |
| 3 | -42 | 26 | 588 | 0 | 24 | -44 | 1 |
| 4 | -44 | 19 | 584 | 0 | 23 | -40 | 1 |
| 5 | -40 | 13 | 575 | 0 | 22 | -31 | 1 |
| 6 | -31 | 9 | 563 | 0 | 21 | -19 | 1 |
| 7 | -19 | 19 | 582 | 0 | 0 | -38 | 1 |
| 8 | -38 | 17 | 577 | 0 | 22 | -33 | 1 |
| 9 | -33 | 20 | 574 | 0 | 23 | -30 | 1 |
| 10 | -30 | 15 | 565 | 0 | 24 | -21 | 1 |
| 11 | -21 | 18 | 560 | 0 | 23 | -16 | 1 |
| 12 | -16 | 11 | 548 | 0 | 23 | -4 | 1 |
| 13 | -4 | 15 | 539 | 0 | 24 | 5 | 1 |
| 14 | 5 | 19 | 558 | 0 | 0 | -14 | 1 |
| 15 | -14 | 16 | 551 | 0 | 23 | -7 | 1 |
| 16 | -7 | 22 | 550 | 0 | 23 | -6 | 1 |
| 17 | -6 | 11 | 539 | 0 | 22 | 5 | 1 |
| 18 | 5 | 12 | 528 | 0 | 23 | 16 | 1 |
| 19 | 16 | 12 | 517 | 0 | 23 | 27 | 1 |
| 20 | 27 | 24 | 516 | 0 | 25 | 28 | 1 |
| 21 | 28 | 24 | 540 | 0 | 0 | 4 | 1 |
| 22 | 4 | 15 | 532 | 0 | 23 | 12 | 1 |
| 23 | 12 | 17 | 525 | 0 | 24 | 19 | 1 |
| 24 | 19 | 20 | 523 | 0 | 22 | 21 | 1 |
| 25 | 21 | 20 | 520 | 0 | 23 | 24 | 1 |
| 26 | 24 | 19 | 517 | 0 | 22 | 27 | 1 |
| 27 | 27 | 12 | 505 | 0 | 24 | 39 | 1 |
| 28 | 39 | 17 | 522 | 0 | 0 | 22 | 1 |
| 29 | 22 | 14 | 514 | 0 | 22 | 30 | 1 |
| 30 | 30 | 10 | 499 | 0 | 25 | 45 | 1 |

CUMULATIVE DEMAND= 4359
CUMULATIVE ORGANIC REPAIR= 3859
CUMULATIVE CONTRACT RPAIR= 0

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